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Barriers and facilitators experienced by individuals with complex communication needs in accessing employment

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ABSTRACT

Worldwide, people with disabilities are facing challenges in accessing the job market. This is particularly challenging for persons with severe disabilities, which includes persons with complex communication needs. In South Africa, individuals with complex communication needs have a low employment rate despite efforts to promote their economic participation through legislation and policy initiatives. This study aimed to identify the obstacles to and enablers of employment for individuals with complex communication needs from their perspective. A qualitative design, with purposively selected participants was employed to gain a comprehensive understanding of the issue. The International Classification of Functioning, Disability and Health framework guided the study. The participants included 24 individuals with complex communication needs, of whom 11 were employed and 13 unemployed. Data were collected through semi-structured interviews and analyzed using conversational qualitative content analysis. The factors that hindered and facilitated the participant's employment were identified and linked to specific ICF codes. Both participants groups reported barriers that were related to the type of disability, limited access to education, a lack of employment opportunities, and negative attitudes. The facilitating factors most frequently reported were related to the availability of employment and rehabilitation services, policy and legislation, and positive personal traits.

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Introduction

Individuals with complex communication needs are significantly underrepresented in the global job market (Di Francesco et al., 2021; Renner et al., 2023). Due to the complexities of communication disabilities, these individuals often face poor educational and employment outcomes, with many not participating in school or job training (Bialik & Mhiri, 2022). This results in a lack of necessary qualifications and skills for employment (Marshall et al., 2024), while those who are employed, typically hold low-paying jobs with limited advancement opportunities (Richardson et al., 2019). Therefore, irrespective of whether they are employed or not, individuals with complex communication needs are at risk of social isolation and poverty.

Limited research exists on individuals with complex communication needs in low- and middle-income countries (LMICs) (Marshall et al., 2024). However, existing studies highlight multiple employment barriers, including misconceptions about disability, inadequate access to health, education, and transportation, and limited assistive technology (Khayatzadeh-Mahani et al., 2020; Morwane et al., 2021). The myriad and multifaceted barriers and facilitators to the employment of individuals with complex communication needs can be understood using a biopsychosocial model of disability, the International Classification of Functioning, Disability and Health (ICF) framework (Morwane, 2021; Tönsing et al., 2024). As a biopsychosocial model of disability, the ICF provides a broad perspective of disability and presents an opportunity to examine an individual's specific characteristics, impairment, and environmental influence on their functioning and disability (Momsen et al., 2019).

In countries such as South Africa, cerebral palsy (CP) is a leading cause of disability, affecting 1 in 10,000 births (Abdel Malek et al., 2020). This condition often comes with comorbid speech and language disabilities, which are especially severe in rural areas where living conditions are poor and access to services is limited (Dada, Kathard, et al., 2017).

Individuals with complex communication needs require augmentative and alternative communication (AAC) to communicate effectively (Tönsing et al., 2024). AAC is crucial for developing language, literacy, and social skills, which are important for future employment outcomes (Richardson et al., 2019). Access to AAC in South Africa is shaped by

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policy frameworks, service delivery models, and resource availability. While AAC support is primarily provided through public healthcare services, special education institutions, and non-governmental organizations (NGOs), it remains elusive for many due to limited resources and a shortage of trained professionals (Dada, Murphy, et al., 2017; Morwane et al., 2019). This gap is particularly pronounced in rural areas, where expertise in AAC is limited among rehabilitation professionals and teachers (Dada et al., 2024).

Pillay et al. (2020) note a shortage of rehabilitation professionals such as speech language therapists in both medical and educational settings. Of the 1,065 registered speech-language therapists, about 64% work privately, mostly in urban areas (Pillay et al., 2020). Additionally, many of these professionals lack knowledge of AAC, limiting their ability to provide effective intervention and training (Dada, Murphy, et al., 2017).

A key policy guiding inclusive education in South Africa is *White Paper 6: Special Needs Education – Building an Inclusive Education and Training System* (2001). This policy promotes the integration of learners with disabilities into mainstream education and emphasizes the need for specialized support services, including AAC. However, despite its progressive vision, challenges such as insufficient funding, inadequate teacher training, and inconsistencies in service provision continue to make AAC access elusive in many educational settings. (Dada, Kathard, et al., 2017).

Also, basic education for children with complex communication needs is generally inadequate, with many public schools in poor condition (Dada, Kathard, et al., 2017). According to principles outlined in the White Paper 6, inclusion was meant to be achieved by shifting from segregated education to inclusive full-service schools that offer adapted curricula and trained teachers (Donohue & Bornman, 2014). However, three decades after the end of apartheid, and the implementation of White Paper 6, children with disabilities in South Africa remain in segregated special schools (Donohue & Bornman, 2014). Moreover, full-service schools are poorly resourced, and teachers often lack the skills to support learners with severe disabilities, including those with complex communication needs (Moodley, 2017).

The lack of quality education impedes the progression of learners with complex communication needs to post-primary education (Sefotho et al., 2019). Vocational programs, including supported employment and disability services, are underdeveloped in South Africa, with most vocational training occurring informally in community shelters (Morwane, 2023). Despite South Africa's high unemployment rate, the employment rate of persons with disabilities is minimal, about 1.2% (Department of Labour, 2024). This study will explore the factors affecting employment for individuals with complex communication needs in South Africa. It will explore challenges related to securing employment opportunities, obtaining full-time positions, and accessing necessary workplace accommodations. Understanding both the barriers and facilitators from the perspectives of job seekers and employees with complex communication needs is essential for developing more inclusive employment practices.

Conceptual framework

The ICF was used as a guiding framework in this study (WHO, 2001). It provides a consolidative analysis of potential barriers and facilitators of employment of individuals with complex communication needs and integrates essential components from the medical and social models of disability. The ICF consists of f our domains, namely, the body function and structure, activity and participation, environmental and personal factors domain.

The body function and body structure categories are designed to be used in conjunction with other domains of the ICF, such as the activity and participation domain. Therefore, the description of impairment is merely to determine individual needs such as accommodations in the workplace and is not used for purposes of diagnosis (McCormack & Worrall, 2008). The ratings in this domain, indicate that the more severe the disability, the greater the limitations and restrictions in participation (McCormack & Worrall, 2008).

The activity and Participation domain refers to functioning at both the individual and societal level as a result of the impairment in body function and body structure (Bornman, 2004). Activity refers to an individual's execution of a task or action (e.g. participation in a job interview) (WHO, 2001). Activity limitations refer to difficulties experienced when carrying out tasks on a daily basis (e.g. difficulties in completing a curriculum vitae). On the other hand, participation refers to the involvement and engagement in life situations such as employment. It includes what an individual does together with others, how engaged they are, and what they consider meaningful (e.g. socializing in the workplace) (Bornman, 2004). Participation restrictions refer to difficulties with involvement in the mentioned life situations and spheres of life. Despite a clear description of and differentiation between the two components, the terms activity and participation can be difficult to distinguish, and in most instances, they are used interchangeably or together (Escorpizo, Finger, et al., 2011). In this study they are used together to indicate restrictions in participating in activities such as education and employment.

Environmental factors over the physical, social, economic, and attitudinal environments where persons with disabilities live and conduct their lives (Howe, 2008). In the ICF, the environmental factors are organized from the immediate environment (e.g. settings at home or the workplace) to the general environment (e.g. legislation and policy quotas on employment of persons with disabilities).

Personal factors are not classified in the ICF, as they are not directly related to a person's health condition and health status, although they influence how an individual functions in everyday life (Müller & Geyh, 2015). These factors refer to the features of the individual that may have an impact on their experience of disability. These include gender, age, education, cultural background, the onset of disability, exposure, and employment experience (Müller & Geyh, 2015). Although the ICF does not describe how personal factors act as barriers or facilitators to participation, their impact on functioning is undeniable. To understand this phenomenon, the personal factor of education can be used as an example. Individuals

with a low level of education are limited in terms of the types of jobs available to them and thereby present with an increased challenge in entering the labor market.

Method

Research design

A qualitative phenomenological design was adopted in this study (Creswell & Poth, 2018) using asynchronously semi-structured interviews via WhatsApp™. This design is participant-centered, as it provides individuals with complex communication needs a voice on issues pertinent to their employment experiences. By capturing their lived experiences, this approach fosters a deeper understanding of their perspectives and can be viewed as empowering.

Participants recruitment and sampling

Participants were recruited through disability advocacy groups and had to have a communication disability, use an AAC system, and access WhatsApp™, a text-based messaging system, on their phones. The potential participants who responded to invitation letters and flyers were provided with an information letter, accompanied by voice note messages on the WhatsApp™ platform to aid understanding. The voice notes gave an introduction to the researcher, a brief description of the study and what is required from participants. Recruiting potential participants with complex communication needs posed a significant challenge, especially for those who were employed. The selection criteria were that participants be 18 years and older, present with a communication disability and used alternative methods of communication other than speech to communicate daily needs and wants, and also have access to a mobile device with Whatsapp™ installed. The recruitment process took 6 months to complete.

A total of 43 response was received, 26 provided consent, however two did not complete the interview questions and thus did not form part of the study. A total of 24 participants participated in the study with 13 participants being unemployed, and 11 were employed. "Employment" was conceptualized as paid, unpaid, formal, informal, part-time positions, and temporary work. Out of the 11 employed participants, three had formal jobs of which two worked 40 hours per week, one 20 hours, and one worked freelance with varying hours (20–40 per week). The rest of the employed participants were in part-time positions in their disability advocacy organizations. Except for one participant with a chronic disease, the remaining 23 participants' communication disability was attributed to CP. Most participants used mobile phones and WhatsApp™ for communication, with some also using text-to-speech apps. Only one participant used a dedicated AAC device, namely the Gigabyte™ with Grid 3™ software, although she also used WhatsApp™

See Table 1 and 2 for a description of the participants

Procedures

Ethics approval was granted by the Research Ethics Committee of the Faculty of Humanities at the University of Pretoria (27511856 (HUM032/0519). Permission was obtained from relevant organizations, groups, and informed consent was obtained from participants. The ethical guidelines were aligned with the Convention on the Rights of Persons with Disability (United Nations, 2006) and the Belmont Report (1978), including respect for autonomy, beneficence, non-maleficence, justice, and confidentiality and adhered to human rights and dignity principles for individuals with disability (Prusaczyk et al., 2017)

Data collection procedures

The research team consisted of the first author and a research assistant. The other two authors were supervisors of the project as this paper formed part of the first authors PhD project. The use of asynchronous texting, such as WhatsApp, as a method of data collection was used in this study as it offers significant advantages in terms of accessibility for individuals with complex communication needs. This approach, as highlighted by Wepener et al. (2021), enhances participation by allowing individuals to respond at their own pace and in a medium that supports their communication preferences. Data was collected from 03 September 2020 to 16 October 2020.

The researcher took into consideration the data cost involved in participating in the study and therefore provided participants who agreed to participate in the study were given 2Gigabyte of data.

Table 1. Description of unemployed participants.

Participant code	Age Years	Gender	Home language	School education	Educational qualification	Primary diagnosis	CFCS Communication	GMFCS Gross motor	MACS Fine motor
U-1	26	Male	Xitsonga	Special school	Certificate	CP	Level III	Level V	Level III
U-2	25	Female	isiXhosa	Special school	Grade 12	CP	Level III	Level III	Level III
U-3	23	Female	Sesotho	Special school	Grade 9	CP	Level III	Level III	Level III
U-4	26	Male	isiXhosa	Special school	< Grade 9	CP	Level III	Level III	Level IV
U-5	35	Female	Setswana	Informal training	No school education	CP	Level III	Level III	Level III
U-6	33	Female	isiXhosa	Special school	< Grade 9	CP	Level III	Level III	Level II
U-7	23	Female	Setswana	Special school	Grade 9	CP	Level III	Level III	Level IV
U-8	21	Female	Other	Special school	Certificate	CP	Level III	Level V	Level V
U-9	24	Male	Setswana	Special school	Grade 9	CP	Level III	Level III	Level IV
U-10	34	Female	isiXhosa	Special school	<Grade 9	CP	Level III	Level V	Level V
U-11	21	Female	isiXhosa	Special school	Grade 12	CP	Level III	Level V	Level III
U-12	21	Female	Setswana	Special school	Grade 9	CP	Level III	Level III	Level IV
U-13	24	Male	Setswana	Special school	Grade 9	CP	Level III	Level V	Level III

U: Unemployed; CP: Cerebral Palsy; CFCS: Communication Function Classification System; GMFCS: Gross Motor Function Classification System; MACS: Manual Ability Classification System (MACS).

Table 2. Description of employed participants.

Participant	Age	Gender	Home Language	School education	Educational qualification	Primary diagnosis	CFCS Communication *(Aided)*	GMFCS Gross motor	MACS Fine motor	Employment Position
E-14	40	Female	Sesotho	Mainstream	Grade 12	Chronic medical	Level III	Level I	Level I	Clerical administrator
E-15	40	Male	Setswana	Special school	Grade	CP	Level III	Level V	Level IV	Counselor and disability advocate
E-16	40	Male	isiZulu	Special school	Grade 12	CP	Level III	Level V	Level V	Disability advocate and music artist
E-17	23	Male	Xitsonga	Special school	Grade 12	CP	Level III	Level III	Level III	Assistant supervisor
E-18	24	Female	Setswana	Special school	Certificate	CP	Level II	Level III	Level III	Writer and disability advocate
E-19	34	Female	isiZulu	Special school	Grade 12	CP	Level II	Level I	Level I	Administrator and disability advocate
E-20	24	Male	Tshivenda	Special school	Grade 12	CP	Level II	Level V	Level IV	Self-employed and music artist
E-21	37	Female	Afrikaans	Special school	Certificate	CP	Level II	Level III	Level III	Office administrator
E-22	30	Female	Setswana	Special school	Grade 9	CP	Level II	Level V	Level V	Disability advocate
E-23	26	Male	Tshivenda	Mainstream	Grade 12	CP	Level II	Level IV	Level III	Self-employed and part-time counselor
E-24	33	Female	isiZulu	Special school	Grade 12	CP	Level II	Level III	Level V	Disability advocate Part-timer

U: Unemployed; CP: Cerebral Palsy; CFCS: Communication Function Classification System; GMFCS: Gross Motor Function Classification System; MACS: Manual Ability Classification System (MACS).

The researcher recorded all questions in English and Setswana and shared them as voice note messages. The participants were sent only two written questions per day, accompanied by audio messages to allow them enough time to respond. They were also informed that they could respond at any time of the day as convenient to them. Although the participants had a period of two weeks to respond to questions, all submitted their responses within the space of a week. As the participants provided responses to the questions, new questions were sent. Probes were also sent via voice note messages to participants who provided unclear responses or appeared to have misunderstood the question.

The responses were also reviewed (form of transcript review), and the information provided was verified for accuracy where it was unclear. This was conducted by the researcher. Participants were asked whether the researcher correctly interpreted a response to a question. Where a question was misunderstood, participants were asked to elaborate further. When the last two questions were provided, the researcher indicated so in the messages. The participants were therefore asked to indicate when they were finished with responding to questions. This was due to some participants sending an incomplete question and only completing it the next day.

At the end of the interview, participants were thanked and informed that they would receive communication from the researcher should any further information be required. Also, the participants were provided with a list of the SRAs to contact for possible placement in training or employment positions. Participants were also offered assistance with the completion of the curriculum vitae should they require assistance. The participants were again reminded that a summary of the findings once the thesis is completed will be provided.

While answering questions about their personal background, the participants were also asked to explain how they communicate and move around. The researcher asked questions about their communication abilities using the Communication Function Classification System (CFCS) scale (Hidecker et al., 2012). Additionally, the participants were asked if they could record a voice note of themselves verbally stating their name and surname. This aided the researcher in confirming the participants' self-assessment of their verbal mode of communication to better understand their functional communication abilities more particularly.

Similarly, to assess their motor function, the participants were asked to confirm their mobility using the Gross Motor Function Classification System (GMFCS) scale and their hand function using the Manual Ability Classification System (MACS) (Hidecker et al., 2012). The participants were able to describe their walking abilities, limitations, need for assistance with daily activities, and how they accessed their communication device/mobile phone.

After receiving responses, the participants were asked to indicate if they agreed with how the researcher had interpreted their response to a question. If a question was misunderstood, the participants were asked to provide more detail. The researcher indicated when the last two questions were provided. Participants were subsequently asked to indicate when they had finished responding to the questions. This was necessary because some participants sent incomplete initial answers which they completed the following day. Finally, the participants were asked if they were comfortable clarifying some of the interview questions if such a need arose.

Data analysis

Deductive content analysis was used to analyze data (Elo et al., 2014). The data is presented using the domains of the ICF as broad headings: body function and body structure, activity and participation, and contextual factors (personal and environmental factors). Factors identified in the study were coded based on the number of participants mentioning a specific barrier or facilitator rather than the number of times a factor was mentioned. For instance, if 14 participants cited poor transportation services as a barrier to reaching places of employment, it would be indicated as "$n = 14$."

Identified barriers and facilitators are presented together. When a barrier is discussed, it is indicated by "*the lack of*" (using a – symbol in the tables that follow), and when a facilitator is mentioned, it is indicated by "*the availability of*" *(*using a + symbol in the tables that follow).

Findings from the employed and unemployed participants with complex communication needs are presented together. When a construct was specific to a particular participant group, it was indicated whether the participant was employed (E) or unemployed (U).

Coding was conducted firstly, by the researcher herself, and secondly by the second rater. They trialed the coding process by independently coding two randomly selected transcripts. The identified codes were therefore linked to the corresponding ICF classification code. The linking process followed the linking rules as outlined by Cieza et al. (2019). This was also conducted by two raters independently. Interrater reliability was determined by using percentage agreement, with the two raters demonstrating an 80% agreement, indicating a moderate to high level of consistency in their evaluations. Discrepancies in ratings were resolved through discussion and consensus.

No acronyms in the form of keycodes were used. Codes not classified were written in full (e.g. health condition, and personal factor). An example of the deductive analysis process is outlined in Table 3. The codes identified were coded for existence and not for frequency (i.e. how many times is the specific code mentioned by a participant). In order to determine whether a specific code is a major barrier or facilitator, the frequency of that specific code in the entire data set ($N = 25$) was determined.

Results

A total of 24 factors that were either facilitating or hindering employment were identified across all four domains of the ICF.

Body function and body structure

Under the body function and body structure domain, the type of disability reported as a barrier was linked to identified categories, voice and speech functions (b310), seeing functions (b210), and hearing functions (b230). Another reported barrier, namely the severity of the disability, was also linked to identified categories, namely voice and speech functions again (b310), rhythm functions (b330), and mobility of joint functions (b710). Table 4 shows a description of the identified barriers expressed as categories

Activity and participation

Under the activity and participation domain, ten barriers were identified linked to categories in the ICF. These included vocational training (d825), which was mentioned most frequently motor skills walking (d450), moving around (d455), hand use (d440) and hand and arm use (d445), as well as communication-related factors such as speaking (d310). Other factors that were also mentioned included school education (d820), acquiring and keeping a job (d845), and work preparation (d840).

Table 5 describes the barriers and facilitators expressed as categories in the activity and participation domain.

Table 3. Description of the linking process to ICF categories.

Phase of the study	Interview Question	Transcript (participant response)	Code identified	ICF Second Level Classification	Domain of the ICF
Participant code EPWD 024	What do you think will help people with disabilities find jobs?	*"Support and training on how to get the job that can accommodate my disability."*	Employment seeking support	d 845 Acquiring, keeping and terminating employment	Activity and Participation domain

Table 4. Identified barriers to (–) and facilitators of (+) employment in the body function and structure domain ($N = 24$).

		Body function and Body structure Domain		
Identified barriers expressed as categories	Second-level classification code	–	+	Verbatim participant responses
Type of disability n = 12				
Communication disability	b310 Voice and speech functions	–		"*As a disabled person who needs a lot of help like me, it's hard to get a job because you need to take someone to help you. With the speech problem that I have, I have to take my laptop with me to talk to people, so it is not easy to get a job*" (E-15).
				"*My disability is a barrier for me because how can I communicate with people at the workplace even though I use my device to speak but my device will break down someday, and I'll be stranded*" (U-12).
Severity of disability n = 10		–		"*I have speech impairment*" (U-3); "*…this limits my ability as some jobs require fluent*
Severe communication disability	b310 Voice and speech functions b330 Speech and rhythm functions	–		*talking skills*" (U-2). *"I can't speak well, I use communication device to communicate which I operate with my mouth"* (E-18)
				"*I can't work well with my hands and that limits my opportunities*" (U-2).
Severe physical disability	b710 Mobility of joint functions	–		*"Because I have a speech impairment, uncontrollable movements and I'm in a wheelchair, so it's difficult for me to find a job*" (U-11).
	b765 Involuntary movement functions	–		
Poor health condition n = 1	Not classified	–		*"Ever since my accident, I was not well to work like I used to"* (E-22).

– indicates barriers and + indicates a facilitator.

Table 5. Identified barriers to (–) and facilitators of (+) employment in the activity and participation domain ($N = 24$).

Activity and Participation Domain				
Identified - and + as categories	Second-level classification code	–	+	Verbatim participant responses
Vocational training n = 17	d825 vocational training	–		*"Special schools need to offer opportunities for training and prepare learners for work"* (E-24); *"Persons with disabilities need to be offered opportunities for training at school to prepare us for work"* (E-9) *We need skills like computer skills, sewing, baking, carpentry and many more in order for them to get jobs or to start a business"* (U-13).
Motor skills n = 14		–		*"I cannot walk; I cannot write"* (I cannot do things on my own*)* (U-4).
Mobility	d 450 walking	–		*"I can't work well with my hands, and that limits my opportunities"* (U-2)
	d455 moving around	–		
Hand function	d 440 hand use	–		
	d445 hand and arm use			
Communication related skills *n* = 10	d310 speaking	–		"*My disability is a barrier for me because how can I communicate with people at the workplace even though I use my device to speak but my device will breakdown someday, and I'll be stranded*" (U-12)
School education *n* = 7	d820 school education		+	*"Special schools need to offer opportunities for training and prepare learners for work"* (E-24). "*We need skills like computer skills, sewing, baking, carpentry and many more for them to get jobs or start a business*" (U-13)
Seeking employment *n* = 5	d845 acquiring and keeping a job	–		*"Do not just sit at home and wait for somebody to call you. You must ask around about job"* (U-9) *"Go out and interact with people"* (E-23)
Work preparation training *n* = 5	d840 work preparation		+	"*My advice to speech therapists, occupational therapists and the teachers that are teaching learners with disabilities would be they must teach learners with disabilities practical things that will enable them to qualify for jobs in the near future*" (U-12).
Self-employment n = 4	d850 remunerative work	–	+	*"Special schools don't teach the education needed to get a proper job. Some of us want to open businesses, but we don't have the knowledge to do so. Sometimes I get emotional when I think about this"* (E-20)

– indicates barriers and + indicates a facilitator.

Environmental factors

The factors indicated by the participants are presented according to the environmental chapters as outlined in the environmental factors in the ICF. Negative attitudes from employers were the most frequently mentioned barrier for persons with disabilities to be employed and to stay employed. While the lack of employment opportunities was also a reported major barrier. The availability of assistive technology and support from family and friends was considered the most important facilitators toward securing employment and staying employed. Table 6 describes the environmental facilitators and barriers.

Personal factors

Traits such as good self-esteem, confidence, optimism, and perseverance were reported to be key facilitators to acquiring employment and staying employed. The most frequently mentioned personal factor was having the necessary qualification (i.e. education). The factors are outlined in Table 7.

Discussion

The findings based on the identified factors demonstrate that the domains within the ICF are reciprocal and interconnected (Bornman, 2004). For people with complex communication needs, severe impairment in speech and motor function (body function and body structure, impacts participation in major life areas such as education and employment (activity and participation) (Threats & Worrall, 2004). Also, engagement in these areas is further intensified by environmental (physical, cultural, social environment) and personal factors that can either facilitate or hinder participation (Scott et al., 2019). These findings are similar to what was observed in previous studies on barriers experienced by individuals with complex communication needs in employment (Scott et al., 2019). Furthermore, barriers experienced by individuals with complex communication in LMICs though similar to those observed in HIC, may differ in terms of access to services such as rehabilitations services and assistive technology (Scott et al., 2019).

Body structure and function

Participants reported that the presence of severe communication and mobility impairments was a barrier to participating in employment, echoing findings by Yazıcı et al. (2011). Medical and rehabilitation practitioners who follow a medical model approach, often view individuals with complex communication needs as incapable of participating in education and employment (Andrews, 2017). This perspective is worsened in South Africa by cultural or religious misconceptions, leading to increased stigma and discrimination, which in turn reduces access to early intervention and education (Dada, Kathard, et al., 2017; Tigere & Makhubele, 2019). Even those who do receive education are less likely to complete it (Marshall et al., 2024).

The findings in this study revealed that individuals with severe physical disability, such as non-ambulatory conditions and poor hand function, struggle to access employment. Conversely, those with fewer physical limitations, such as those who are ambulatory and can independently write or type, were more likely to secure full-time jobs. Volunteers

Table 6. Identified barriers (–) to and facilitators (+) of employment in the environmental domain of the ICF as reported by persons with communication access needs ($N = 24$).

Environmental Domain:					
Environmental ICF Chapters	Identified + and – expressed as categories	Second-level classification code	–	+	Verbatim participant responses
Attitudes $n = 20$	Employer negative attitudes	e430 employers	–		*"My disability has affected my opportunities in finding a job because, when employers see me, they judge on my appearance, or when I speak, they will hardly hear me and get frustrated, and they never respond on how the interview went"* (U-2)
	Co-worker negative attitudes	e425 colleagues	–		"*People in the workplace itself are not clued on people with disabilities*" (E-21). "*They find it hard to adjust to work with people that have a disability*" (E-17).
Services, systems, and policies $n = 15$	Employment	e590 – Labor and employment services, systems, and policies	–		"*I don't know how to find those resources that will help me to find a job because I live in a disadvantaged community which it can't help me with resources that I need*" (U-13)
	Employment opportunities	e590 – Labor and employment services, systems, and policies	–		*"There are no jobs. They're telling us lies to go to certain places, but there's nothing there for us. If you don't know anyone who can help you, chances are you won't get in. This is the biggest problem about the system. No one is willing to share the information. There's nothing suitable for us*" (E-20). "*Learnerships and internships are needed in order to help persons with disabilities gain more knowledge and experience*" (U-1). ' *I think after you complete a learnership, they must give you a job*" (E-24). *"I have completed a third learnership and received no offer for a permanent position*" (U-2).
	Rehabilitation	e580 health services and systems	–		*"My advice to speech therapists, occupational therapists, and the teachers that are teaching learners with disabilities is that they must teach learners with disabilities practical things that will enable them to qualify for jobs in near future. The speech therapists must do exercises with learners with speech impairment to improve their speech. Occupational therapists must work with Speech-language pathologists to help learners or people with speech impairment with devices that will help them in workplaces*" (U-12)
	Transportation	e540 transportation services & systems	–		**"***Taxis give us problems, when we want to go somewhere. We must pay double the taxi fare*" (E-16)
	Legislation and policy	e550 legal services and systems		+	"*The government does not care about us that drop out the school*" (U-6). "*Our government must not sit down and expect people to find jobs on their own*" (E-24)
		e570 social security services and systems		+	*"We need help from the government" (E-5)* *"We need to push the government to help persons with disabilities (E-23)*
Built environment $n = 7$	Accessibility of buildings and workspaces	e155 design, construction of buildings		+	"*Always ensure the company is wheelchair friendly*" (E-19) "*The last resource that I'll need is a personal assistant that will help me to go to the toilet, feed me, help me with my device and write notes at meetings*" (U-12)
Support and relationships $n = 7$	Support from family	e310 immediate family	–	+	*"My family assist with searching for a job as they know me better than anyone and know which type of job I need"* (U-12*)* *"Parents should allow children with disabilities to go to school in order to be able to work one day*" (E-18)
	Support from friends	e320 friends		+	*"I had a good friend who worked at a big company. She always kept me updated on vacancies that I could apply for*" (E-23)
	Support from colleagues	e325 colleagues	–	+	"*When working with a person with a disability, you must not be difficult. Colleagues must be proud of you and work together nicely with the staff members. My ideal job is to just feel needed and appreciated"* (E-22)
	Support from people in the community	e330 people in position of power		+	"*Someone from my community told me they are seeking for persons with disabilities to employ and referred me to the local police station*" (E-23)
	Support from therapists	e355 health professionals	–	+	"*My speech therapist was a gift from God because I struggled with coping at work*" (E-14) *"I worked with my occupational therapist to search for jobs. I went and attended workshops for persons with disabilities*" (U-8)
	Support from educators	e360 other professionals	–	+	"*My former teacher helped me find my first job*" (U-4)

(*Continued*)

Table 6. Continued.

Environmental Domain:					
Environmental ICF Chapters	Identified + and – expressed as categories	Second-level classification code	–	+	Verbatim participant responses
Products and technology $n = 6$	Assistive technology for work	e125 products and technology for communication		+	*"My computer helps get a lot done"* (E-19) *"The resources that are helpful for me to stay employed are device that I'll be using to communicate with my colleagues every day, another one an electric wheelchair that I'll be using to push myself to meetings and the office"* (U-12)
	Assistive communication device	e135 product and technology for employment		+	
	Assistive technology for mobility	e120 Products and technology for mobility		+	

– indicates barriers and + indicates a facilitator.

Table 7. Identified barriers to (–) and Facilitators of (+) Employment in the Personal Factors Domain ($N = 24$).

Personal factors Domain				
Identified + and – as categories	Second-level code	–	+	Verbatim participant responses
Educational qualifications and vocational skills $n = 24$	Not classified in the ICF	–	+	*"The most difficult thing about getting a job is qualifications"* (U-2), *"Some of us don't have those necessary qualifications because we went to special schools"* (E-20) *"Companies can't hire someone who has a disability and didn't finish school"* (U-6) *"The thing is, if you have no qualifications, you are nothing"* (U-5). *"Qualifications and the work experience helped me to find the job"* (E-19)
Personal traits $n = 19$ *Self-esteem Motivation Confidence Knowledge*	Not classified in the ICF	–	+	*"You must not look down on themselves because of their disability. They need to encourage and believe themselves first before the employers do"* (E-26). *"I think confidence and ambition. If we can have the confidence within ourselves, it will be easier for people to look past our disabilities and not feel like we are unable to meet the requirements that are needed"* (U-3)

The barriers are shown as – and the facilitators as +.

and those in temporary part-time, low-paying positions were more common among those with severe disabilities (Trembath et al., 2010).

Participants expressed reluctance to apply for jobs due to concerns about effective communication with employers and colleagues. Effective communication is highly valued by employers, and those who communicate their needs are significantly more likely to be employed (Khayatzadeh-Mahani et al., 2020). Despite using AAC devices competently, participants were not in mid-level or higher permanent positions, consistent with findings that competent communicators with disabilities still face employment challenges (Renner et al., 2023).

This study indicates that barriers to employment for individuals with complex communication needs extend beyond verbal communication. Physical limitations, such as impaired mobility and hand function, also significantly affect employment prospects, aligning with literature suggesting that individuals with intellectual disabilities are more likely to be employed than those with severe physical disabilities alone (Bialik & Mhiri, 2022).

Activity and participation

Participation in major life areas such as education and employment depend on the availability of accessible education and employment opportunities, as noted in previous studies (Kocman et al., 2018).

School education

The study found that access to education and vocational training significantly impacts employment opportunities for participants. Many could only complete schooling up to Grade 6 or 9 due to inadequate educational support for learners with complex communication needs. Schools often lack the necessary adapted curriculum and assistive technology, and the qualifications framework typically does not include a Grade 12 level for learners with disabilities (Graham, 2020). Consequently, many learners leave school without the qualifications needed for higher education.

Limited education leads to poor literacy skills, which restrict job opportunities and vocational growth (Di Francesco et al., 2021). While none of the participants were illiterate, those with only Grade 6 or lower qualifications struggle with formal written communication, negatively affecting their ability to perform in administrative roles.

Additionally, the lack of vocational education in schools was noted, with participants expressing a desire for entrepreneurship training to start their own businesses. They also felt that career guidance should be provided earlier in their education. None of the participants had attended vocational training programs, reflecting a broader challenge of insufficient vocational training for individuals with severe disabilities in South Africa (Morwane, 2023; Tinta et al., 2020).

Environmental factors as part of contextual factors domain

Environmental factors were identified as either key barriers or facilitators to employment for individuals with complex communication needs. These factors include negative attitudes, limited employment services, restricted education, inaccessible and costly transportation, and policy implementation challenges. Both barriers and facilitators significantly impact

participation in the labor market, aligning with findings from Kocman et al. (2018) and Visagie et al. (2017) which also emphasize environmental influences.

Attitudes

Participants with complex communication needs face more significant employment barriers compared to those with other disabilities. They report discrimination during job applications, where employers often ignore their applications, preventing them from reaching the interview stage. This aligns with Rashid et al. (2020), who reported similar challenges for those with complex communication needs.

A general lack of understanding about the capabilities of persons with severe disabilities creates barriers to their integration into the labor market (Di Francesco et al., 2021). Negative attitudes from employers and societal beliefs about disability impact workplace dynamics. For example, participants have faced verbal and emotional abuse from colleagues who did not understand the need for disability accommodations. In some cases, concerns were resolved through human resources, while others had to find new employment.

Additionally, an employed participant with an acquired disability reported that colleagues avoided direct interaction, feeling uncomfortable around her AAC communication device. In South Africa, where such devices are relatively unknown (Dada, Murphy, et al., 2017), this lack of familiarity contributes to discomfort and exclusion, similar to findings in the USA where AAC devices have been available since the early 1980s and are thus more common (Lackey et al., 2023).

Families often lack knowledge about available interventions for their children, leading to delayed support and diminished future employment prospects. This issue is compounded by prevailing cultural and religious beliefs about disability, which can lead to stigmatization and restricted intervention opportunities (Sadiki et al., 2021). Despite South Africa's progressiveness in terms of universal human rights, misconceptions and confusion about disability due to spiritual beliefs persist, affecting access to necessary interventions (Tigere & Makhubele, 2019). There is thus a need for intervention programs to be culturally sensitive and aligned with community beliefs to effectively support individuals with disabilities (Sadiki et al., 2021).

Employment opportunities

Employment opportunities are notably limited for individuals with severe disabilities (Khayatzadeh-Mahani et al., 2020; Lackey et al., 2023), as evidenced by the few participants in formal, paid roles. Challenges include inadequate educational qualifications, lack of vocational skills, and the inflexible expectations of some employers. Consequently, many are excluded from job opportunities due to these barriers.

South Africa's learnership programs, designed to integrate persons with disabilities into the workforce, typically require a Grade 12 qualification, excluding many participants from the outset (Morwane, 2023). Participants expressed frustration over the lack of accommodations for lower qualifications and unsuitable positions offered. Although these programs provide work experience and skill development, individuals with complex communication needs frequently cannot access or benefit from them (Dada et al., 2023).

Volunteering offers skill development but seldom leads to full-time, paid employment (Trembath et al., 2010). Most of the participants have volunteered for over a year without securing full-time positions, highlighting their desire for permanent paid work.

Employment opportunities for persons with disabilities remain underutilized, with many rarely applying for jobs (Rashid et al., 2020). Participants often use personal networks rather than specialized recruitment agencies (SRAs), though those who engaged in educational and professional activities were able to network effectively with SRAs and advocacy groups (Sefotho et al., 2019). Studies confirm that networking through workshops and conferences can help individuals with complex communication needs connect with employment opportunities (Khayatzadeh-Mahani et al., 2020; Rashid et al., 2020).

Availability of supports

Participants highlighted several supports critical for employment, including accessible environments, assistive technology, family and friend support, employment services, and transportation. These align with findings from Padkapayeva et al. (2017) on essential accommodations for employees or candidates with disabilities.

Assistive technology was particularly noted as vital for securing and maintaining employment. However, many participants lacked appropriate AAC devices with the necessary software and adaptations, relying instead on gestures and mobile phone typing, which are challenging with limited motor skills. The high cost of AAC devices in South Africa often prevents individuals from purchasing them, with many relying on donations from their support networks. Effective AAC devices facilitate communication, improve skills, and enhance employment opportunities (Lackey et al., 2023). The lack of suitable devices adversely affects communication development and ultimately employability (Dada, Kathard, et al., 2017).

Support from family and friends was crucial, often providing information about job opportunities and assisting with the employment-seeking process. Key stakeholders such as family and friends played a significant role in matching candidates with suitable jobs and supporting their engagement in education and employment (Rashid et al., 2020). All employed participants received support from their network, including friends, family, and rehabilitation professionals, rather than navigating the process independently.

Services and systems

Participants identified key barriers related to accessible rehabilitation, transportation, and employment services, consistent with findings that persons with disabilities often struggle to access these services (Di Francesco et al., 2021; Morwane et al., 2021).

While AAC intervention by professionals can improve outcomes for individuals with complex communication needs

(Dada et al., 2024), many participants had not received formal AAC training. Consequently, they lacked competence in communicating with unfamiliar partners like employers. Limited access to teachers trained in AAC implementation for learning, and to rehabilitation practitioners in schools, hospitals, and remote rural areas, combined with a general lack of AAC knowledge among professionals, exacerbate this issue (Dada, Murphy, et al., 2017; Pillay et al., 2020).

Effective AAC intervention should address not only communication, but also literacy, interpersonal, social, problem-solving, and job-related skills (Bryen et al., 2007). However, current approaches focus primarily on improving function rather than enhancing participation and vocational skills.

Accessible transportation is also crucial for commuting to work, yet affordability, availability, and inadequate physical accommodations create significant barriers (Visagie et al., 2017). Participants often rely on costly private transport or support from friends and family. Those using wheelchairs face additional challenges, needing to transport equipment and personal assistants, making public transportation stressful and expensive.

Legislation and policies

Government support in South Africa for facilitating employment for persons with disabilities is minimal, particularly for those in remote and rural areas (McKinney & Swartz, 2021). Although South Africa, as a CRPD signatory, is obligated to prioritize the development of individuals with disabilities (United Nations, 2006), active programs focusing on skill development for those with severe disabilities are lacking. Existing initiatives, such as learnership programs, still adhere to an economic model of disability, emphasizing monetary gains over the social benefits of employment, such as community inclusion and a sense of belonging. Additionally, skills training programs often fail to accommodate individuals with complex communication needs, who require specialized adaptations for learning materials and accessible environments. As a result, these individuals remain sidelined and struggle to access education and employment opportunities in South Africa (Dada et al., 2023).

Personal factors as part of contextual factors domain

Personal factors, such as self-esteem and confidence, significantly influence whether individuals seek or retain employment. Participants with complex communication needs often struggled with self-perception, viewing themselves as incapable of employment until their speech-language therapist instilled confidence. Despite encouragement from teachers and rehabilitation professionals, these individuals were not empowered to aspire beyond their disabilities, resulting in low expectations and aspirations. The Pygmalion effect suggests that high expectations can boost performance, but low expectations lead to diminished aspirations (Rosenthal & Jacobson, 1968).

Support in developing self-confidence and self-advocacy skills is crucial, as these skills are vital for asserting one's rights in the workplace (Harmuth et al., 2018). Educational and intervention programs should emphasize building these skills to enhance advocacy abilities.

Implications

In South Africa, speech-language therapists, while vital in diagnosing and treating communication disorders, are seldom involved in job training, counseling, or work placement for individuals with complex communication needs. A collaborative approach involving speech-language therapists, occupational therapists, and physiotherapists is essential. Occupational therapists and physiotherapists can enhance motor skills and support the use of assistive technologies, crucial for job performance and workplace integration, while expanding the speech-language therapist's role to include AAC implementation and training for employers could improve employment outcomes.

Limitations

This study had notable limitations. Firstly, it focused exclusively on individuals with congenital communication disabilities, thereby excluding considerations related to the return-to-work process, which would have been relevant for individuals with acquired disabilities. The researcher acknowledges that the challenges associated with returning to work differ significantly between these groups.

Secondly, the study required participants with complex communication needs to be literate in order to provide responses via the WhatsApp™ platform. This requirement may have inadvertently excluded a significant portion of individuals with complex communication needs, particularly those who have never attended school. Additionally, individuals without access to smart devices may also have been unintentionally excluded, despite the absence of explicit exclusion criteria. Consequently, the recruitment process may have limited the representation of certain populations within the study.

Future directions

This study concentrated on interviewing individuals with disabilities, excluding the views of caregivers, teachers, and rehabilitation professionals. Future research should examine these stakeholders' perspectives on barriers to and facilitators of successful employment for individuals with complex communication needs. Additionally, exploring the viewpoints of job coaches and human resource managers in the workplace could provide valuable insights into strategies for improving employment retention for individuals with complex communication needs.

Conclusion

The study findings highlight the persistent challenges faced by individuals with complex communication needs in accessing and participating in the labor market. At an individual

level, participants in this study experienced employment exclusion due to multiple barriers. Important to note that these barriers are deeply interconnected with broader societal barriers. These include negative societal attitudes, limited access to healthcare and rehabilitation services, well-resourced education facilities, and restricted employment prospects.

The study findings highlight the ongoing challenges that persons with complex communication needs face in accessing and participating in the labor market. On an individual level, persons with complex communication needs included in this study experienced exclusion from participating in employment due to the presence of a communication disability. Undoubtedly, these barriers experienced on an individual level are interconnected to societal barriers, such as negative attitudes from society in general, the lack of health services (i.e. medical and rehabilitative services), the limited inclusive education schools and limited employment opportunities.

For the successful employment of persons with complex communication needs, research based on the principles of evidence-based practice highlights that AAC intervention (in early intervention and at school) should be expanded to not only focus on communication skills (more often with only familiar communication partners) but also to include the development of literacy skills, interpersonal skills, social skills, problem-solving skills, and job-related skills. These skills have been shown to increase the employability of persons with complex communication.

Facebook Messenger™	A mobile messaging App that is used for instant messaging. The App is developed by Facebook Inc. Menlopark California, United States of America. https://www.messenger.com/
Gigabyte™	Computer hardware developed, which includes laptops and tablets. Developed in Taiwan. https://www.gigabyte.co.za
Google™	A search engine of various forms of data such as articles, images, videos, etc. http://google.com
Grid 3™	A communication system that allows control of technology and the environment through alternative means of communications. Developed by Thinksmartbox. https://thinksmartbox.com
WhatsApp™	An application that allows users to send text and voice messages, make voice and video calls, and share images, and documents. WhatsApp Inc. 650 Castro Street, Suite 120–219, Mountain View, California, 94041, USA. https://www.whatsapp.com

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Authors contributions

The manuscript is based on the first author's PhD. The second and third authors were the supervisors. R.E.M. was responsible for collecting and analyzing data and conceptualizing, writing and editing the manuscript. S.D. and J.B. contributed to conceptualizing, writing and editing the manuscript.

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