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Availability of disability specialists for students with vision or hearing impairment in the United Arab Emirates: current status and future needs

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ABSTRACT

Purpose: This study aims to identify the disability specialists currently needed for students with vision or hearing impairment in the United Arab Emirates (UAE). It also aims to identify the university-level training courses available for these specialists.

Materials and methods: This study adopted a mixed-methods design. The qualitative strand involved a thematic analysis of semi-structured interviews conducted with 20 employees of 10 UAE organizations providing support services to students with vision or hearing impairment. The quantitative strand determined the number of disability-related degree courses offered at UAE universities from 2018 to 2020.

Results: The interviewees revealed that students with visual impairment most need teachers for the visually impaired, braille trainers, orientation and mobility trainers, and assistive technology specialists, whereas students with hearing impairment most need teachers of the deaf or hard of hearing, speech therapists, and sign language specialists. Regarding disability-related training, 10 UAE universities each offered one disability-related programme between 2018 and 2020. These included nine general programmes for special or inclusive education and one programme for speech pathology.

Conclusion: UAE universities are currently unable to train the disability specialists required for students with vision or hearing impairment. An interim option is to offer scholarships to enable Emirati students planning to become disability specialists to gain these specialized qualifications overseas. Current efforts in the UAE to address the needs of people with disabilities should include a development and implementation plan for UAE university programmes to offer specialized courses for people with vision or hearing impairment.

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Disability specialists; specialized organizations; students with hearing impairment; students with vision impairment; UAE universities.

► IMPLICATIONS FOR REHABILITATION

- Higher educational institutions need to offer more specialised programmes targeting specific disability groups, rather than only general programmes in special education.
- Emirati students applying for scholarships to study abroad should specialise in those disability programmes not currently offered in the United Arab Emirates.
- To prepare certified orientation and mobility specialists, selected special education teachers should be trained overseas in appropriate organizations.

Introduction

The United Arab Emirates (UAE) is an Islamic Arabic country founded in 1971 after a federation was announced between its seven emirates [1]. The discovery and exportation of oil dramatically transformed the UAE within a very short period from a group of small emirates dependent on limited traditional economic resources into a modern country [2]. A national educational system was established in 1971 while the first university was opened in 1977 [3].

As a relatively young country, the UAE lacks a long history in educating and supporting people with disabilities. Indeed, the first education and rehabilitation services for people with disabilities were not established until the 1980s at special centres directed by the Ministry of Social Affairs. These government centres provide services to Emirati citizens while private centres cater to residents of other nationalities [4].

The UAE has made great efforts to support the rights of persons with disabilities in terms of issuing different policies and laws. In 1996, the Ministry of Education adopted its inclusion policy for students with disabilities [3] while the first law on the rights of persons with disabilities, known as Federal Law No. 29 of 2006 Concerning the Rights of Persons with Disabilities, was announced in 2006. The UAE was also one of the first countries in the Middle East to sign and ratify the UN Convention on the Rights of Persons with Disabilities (CRPD), declared in 2006 [5]. According to Degener [6], the traditional view of disability changed after this convention was declared: "It is the first human rights instrument which acknowledges that all disabled persons are right holders, and that impairment may not be used as a justification for denial or restrictions of human rights" [6, p.1]. The willingness decision makers in the UAE to adopt a human rights model of disability is evidenced by various laws and policies. These include the UAE National Strategy for Persons with

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Disabilities, the Ministry of Education's policy, School for All, and Dubai Law No. 3 of 2022 Concerning the Rights of Persons with Disabilities [7–9]. These initiatives all acknowledge the right of persons with disabilities to obtain necessary support and training through educational, vocational, and rehabilitation institutions.

Over the past 25 years, UAE educational institutions have introduced important measures to include students with disabilities into the general education system. In 2010, the Ministry of Education provided further support by announcing its official inclusion policy, named School for All. This policy aims to ensure that students with disability have equal access to education and that the UAE's educational system is inclusive and responsive to the needs of those individuals [8]. More recently, three key educational stakeholders in the UAE—namely, the Ministry of Education, the Abu Dhabi Department of Education and Knowledge (ADEK), and Dubai's Department of Knowledge and Human Development Authority (KHDA)—have developed further regulations and policies for educating students with disabilities in both government and private schools [10].

Moreover, UAE Federal Law No. 29 recognises the right of persons with disabilities to obtain specialised services and training. In particular, Article 14 stresses the importance of training and preparing specialists who can support and provide training to persons with disabilities. Responsibility for this lies with the Ministry of Education:

The Ministry of Education and the Ministers of Higher Education and Scientific Research, in cooperation with the concerned bodies, must provide academic specializations to prepare employees working with a student with a disability and their families, whether in the areas of early diagnosis and detection or educational, social, psychological, or medical or vocational training and ensure the offering of training programmes during service for the purpose of equipping employees with the latest experiences and knowledge [11].

While tremendous progress has been made for persons with disabilities in the UAE, a review of the literature found that there are on-going challenges to meet the needs of students with disabilities. For instance, Alborno [12] concluded that the growing numbers of students with disabilities attending UAE public schools still face serious barriers to inclusion, such as a lack of specialised services and community awareness, insufficient use of assistive technology, and inadequate teacher training. Additionally, Kuyini et al. [13], Takriti et al. [14], Moore [10], Dukmak [15], and Gaad and Khan [16] agree that a significant percentage of teachers still believe that students with disabilities should not be educated in an inclusive setting. Another important challenge to inclusion in the UAE is the lack of qualified personnel to support and train students with disabilities, whether in schools or universities [2,5,12].

Although the number of published studies on inclusive education in the UAE has grown in recent years [2,10,12,14,17,18], few studies have addressed the specific needs of each disability group, particularly those with vision or hearing impairment. The few available studies indicate that students with visual or hearing impairment cannot obtain adequate support in UAE educational institutions. Regarding schools, for example, Alhammadi [19] found that students with vision impairment do not receive sufficient training in braille, orientation, and mobility (O&M), or the use of assistive technology. Consequently, many graduate without obtaining the basic skills needed for independent learning in higher education. Regarding higher education, Morgan [2] concluded that the main barrier to access for students who are deaf or have severe hearing loss is the lack of sign language interpreters in these institutions.

The present study aims to identify the local disability specialists needed to support students with vision or hearing impairment from the preschool level to the university level and evaluate the role of Emirati institutions in developing these specialists. As outlined above, there is a paucity of literature addressing the needs of these groups in the UAE. In particular, no study has specifically analysed the role of UAE institutions in preparing the needed disability specialists. Accordingly, this study will address the following three main research questions:

1. Which disability specialists do students with vision or hearing impairment currently need in the UAE?
2. What role do UAE higher educational institutions currently play in preparing the specialists needed for students with vision or hearing impairment?
3. What role do other organizations in the UAE play in preparing the specialists needed for students with vision or hearing impairment?

Materials and methods

This study adopted the human rights model of disability as its theoretical framework. The human rights model considers disability as both a normal aspect of human diversity and an essential part of any society. Therefore, it presumes that people with disabilities are equally eligible to enjoy equal rights with other members of society [20]. Furthermore, this model entails that the special needs of people with disabilities must be considered when designing any public policies or legislation [21]. The model focuses on removing any discriminatory barriers that may impede persons with disabilities from obtaining equal opportunities for full participation in society or enjoying equal access to education, employment, and social life [20].

Ethical clearance to conduct the study was obtained from Zayed University (Ethical Application Number: ZU18_65_F). A copy of the research consent form was sent to each participant before conducting any interviews. Moreover, the study's purpose and benefits, and the confidentiality measures were explained verbally to all participants. Participation was voluntary, and the participants were given the choice to withdraw their participation at any time before the study was published. The identities of the research participants were kept confidential, and no information that could lead to them being identified was used in the study. Therefore, no information about the participants' positions, specialisations, and years of experience will be disclosed here to preserve the participants' confidentiality.

A mixed methods research design was used to collect and analyse data for this study. Quantitative data were gathered from the official website of the UAE's Commission for Academic Accreditation (CAA) regarding the number of university programmes offered in the UAE in vision or hearing impairment. Qualitative data were gathered through semi-structured interviews with 20 participants (10 males and 10 females) who were purposively sampled as employees of 10 institutions providing specialised services for people with vision or hearing impairment in the UAE. Table 1 below lists the name of these institutions, their classification, and the number of participants from each institution.

The interviews were initially conducted in 2019, while follow-up interviews were conducted in 2021. The research participants were first contacted by phone or email. Each interview took between 30 and 60 min. The interview questions mainly focused on identifying the services provided by each institution for people with visual or hearing impairment; the specialists currently

Table 1. Classification of participating institutions and participants.

Institution type	Institution name (Emirate)	Number of participants
Specialized disability	Sharjah City for Humanitarian Services (Sharjah)	2
	Zayed Higher Organization for People of Determination (Abu Dhabi)	3
	Early Intervention Centre (Sharjah)	2
	Tamkeen vocational training centre (Dubai)	1
	Kalimati Communication and Rehabilitation Centre (Dubai)	1
Non-profit	UAE Deaf Association	1
	Emirates Association of the Visually Impaired	1
University	Zayed University	1
	University of Sharjah	5
	Ministry of Education	3

offering these services; the specialists that each institution would need in the future; the challenges facing each institution to support students with vision or hearing impairment; and the types of training offered by each institution to prepare qualified professionals to work with individuals with vision or hearing impairment (for more information about the interview questions, see [Appendix](#)). The participants were given the choice to be interviewed either in Arabic or English. Arabic interviews were translated by the author into English. All interviews were audio recorded by the author after getting each participant's approval.

The interview data were analyzed using thematic analysis. For this, the interview recordings were transcribed by the researcher after being translated into English if necessary. The data were then categorized under different themes that emerged from the interviews. Finally, the data were summarised, paraphrased, or prepared for quoting. The analysis identified three main themes. The first was about identifying the specialists needed for people in the UAE with vision or hearing impairment. The second concerned the role of UAE higher educational institutions in preparing disability specialists for people with vision or hearing impairment. The third was about the role of other organizations in the UAE in training the needed disability specialists.

Results

The results are presented in relation to each of the three main research questions of the study. First, regarding the specialists needed in the UAE, the following two sub-sections consider vision impairment and hearing impairment separately.

Disability specialists needed for people with hearing impairment in the UAE

The interviewees identified three kinds of specialists that are needed specifically for supporting students with hearing impairment: speech therapists, sign language specialists, and teachers of the deaf or hard of hearing.

Speech therapists

One of the most needed specialists are speech therapists. There is high demand for this service because it is needed by children with a variety of disabilities, such hearing impairment, autism, attention deficit hyperactivity disorder (ADHD), Down syndrome, intellectual disability, and speech delay.

According to the service providers, most speech therapists working in the UAE are not Emirati citizens; rather, they are from other Arab-speaking countries, such as Jordan, Egypt, and Lebanon. The interviewees pointed out that it is very difficult for them to hire speech therapists from these countries as there is high demand in all Gulf Cooperation Council countries. As a result, most government organizations have reduced their

provision of speech therapy sessions, while some have decided to work only with severe cases. Many families in the UAE have therefore turned to the private sector to obtain this service for their children. For many families, however, the cost of speech therapy is unaffordable in the private sector (around 100 US dollars per session).

A member of the administrative board of Kalamati Communication and Rehabilitation Centre commented on this:

We always have a waiting list for speech and language therapy. Lots of families come to us because they know that we specialize in offering Arabic language services. A lot of private centres in Dubai are offering their services in English only.

The same research participant also stated:

In the UAE, there are only a few Emirati speech and language therapists and there is a need for more. The cultural input of the Arabic language differs from one country to another. Thus, we need to have Emirati speech therapists who speak the language and understand the culture.

In addition, an administrator at the Zayed Higher Organization for People of Determination pointed out:

We used to offer our students with hearing impairment four to five speech therapy sessions a week, and the outcome was very good. Now we have a very high demand, and we do not have enough therapists. We can only offer two sessions a week.

Sign language specialists

The interviews with the service providers revealed that there are very few certified sign language specialists in the UAE—fewer than 15 according to some participants. Of these, only a few are Emirati. Until 2023, there was no accredited Emirati body to license sign language specialists in the UAE. Instead, the sector depended on sign language interpreters licensed by the Arab Federation for the Organs of the Deaf. According to the interviewees, the main organizations providing services for people with hearing impairment in the UAE are Zayed Higher Organization, the Ministry of Education, the Emirates Deaf Association, and Sharjah City for Humanitarian Services.

None of these organizations, however, offer certified training programmes in sign language. Instead, they only offer sign language training to people with hearing impairment, their families, and teachers working with such students. Furthermore, none of the sign language interpreters working in these organizations is Emirati citizen; rather, they are from other Arab countries, such as Egypt and Jordan. As a result, some service providers pointed out that they face some challenges in providing people with hearing impairment with sign language interpretation when they need it.

One research participant who works as a university support staff pointed out:

We cannot accept all the students with hearing impairment who apply to study at our university. We have a limited number of sign language interpreters who can work with those students. It is difficult for us to

retain sign language interpreters for a long time. Their job is very stressful. They start at 8 a.m. and finish at 5 p.m., whereas at other places they may start at 8 a.m. and finish at 2.30 p.m.

Teachers of the deaf or hard of hearing

Another of the most needed specialists for students with hearing impairment in schools are teachers of the deaf or hard of hearing. Such teachers play a significant role in identifying the educational and communicational needs of students with hearing impairment, thereby providing invaluable recommendations regarding the provision of support teams and reasonable accommodations for the students. Such teachers can also offer consultations and training to school staff and parents, and work in early intervention programmes for infants and preschool children [22].

Some of the interviewed service providers indicated that many families in the UAE do not believe that mainstream schools have enough specialists to accommodate the needs of their children with severe hearing impairment, especially deaf students. Thus, they prefer to send their children to special schools to receive the necessary services and support. An officer at the Ministry of Education commented:

We need specialists who have bachelor's degrees in hearing impairment. We need them to have deep knowledge and understanding of the needs of students with hearing impairment. The special education teachers do not have the required knowledge to work with those students.

Disability specialists needed for people with vision impairment in the UAE

The interviewees identified four kinds of specialists that are needed specifically for supporting students with vision impairment: vision teachers or teachers certified in visual impairment (TVIs), braille specialists, O&M specialists, and assistive technology instructional specialists.

Vision teachers or teachers certified in visual impairment

A vision teacher or a teacher in visual impairment TVI is a certified teacher who has completed specific training and courses to work with students who are blind or visually impaired from birth until 21 years [23]. In the USA, for example, this type of programme is offered as a postgraduate diploma or master's degree in some universities, including SALUS University and the University of Pittsburgh [24,25]. However, this programme is still not available in the UAE.

The interviewed service providers suggested that these teachers are the most needed specialists for children in the UAE with vision impairment across three different levels: early intervention, kindergarten, and school. Some interviewees working in early intervention centres remarked that there are only three government organizations offering early intervention services in the UAE generally. Most of these lack certified vision specialists who can work with infants and toddlers with vision impairment.

Given that it is responsible for meeting all the needs of students with vision impairment from kindergarten through high school, the UAE Ministry of Education urgently needs such specialists. An administrator from the Ministry of Education admitted that mainstream schools usually have no certified TVIs. In response, the Ministry of Education began providing training in 2015 to more than 20 special education teachers on how to work with students with vision impairment. However, this training was not enough to qualify these teachers as certified TVIs or confirm their knowledge about vision impairment generally.

An administrator at the Ministry of Education commented:

We've been trying to hire a specialist in vision impairment for a few years, but we did not find anyone with sufficient experience. Currently, we rely on special education teachers who completed intensive training in vision impairment to work with students who are visually impaired, but what we really need is a certified TVI.

Another administrator who works at an early intervention centre pointed out:

In recent years, we have started to receive more infants who have vision impairment and intellectual disability. Regular early intervention staff do not have the required knowledge to work with those kids.

Braille specialists

There are two general types of braille specialists: first, literary braille transcribers specialized in transcribing normal printed materials to braille; second, braille specialists who can teach braille to students with vision impairment. In countries such as the USA and the UK, an accredited certificate is required from a specialized organization or university to qualify to work in either field [26,27]. In the UAE, however, there are still no organizations or universities offering such certified programmes.

The interviewees indicated a need in the UAE for both certified braille transcribers and certified braille teachers. They mentioned that only three organizations offer braille training in the UAE: the Emirates Association for the Visually Impaired, the Ministry of Education, and the Zayed Higher Organization. Furthermore, they have very few braille trainers whose competency in teaching braille has not been evaluated. Some interviewees also pointed out that printing science and mathematics books in braille remains a challenge in the UAE due to the lack of qualified braille specialists who can transcribe and modify such materials from normal print to braille.

An administrator working at the Emirates Association for the Visually Impaired commented:

At the Emirates Association for the Visually Impaired, the most requested training is braille. Unfortunately, braille training is not offered to students with vision impairment in private schools. We usually use some volunteers who are visually impaired to teach braille. We choose those who have strong braille skills and can teach braille to others.

Another administrator working at the Ministry of Education pointed out:

Currently, there are only six braille teachers working at the Ministry of Education. Some braille teachers work with more than 10 students at different schools, which is a large number.

Orientation and mobility specialists

O&M trainers are specialists who work with visually impaired individuals across their lifespan. For example, they train the blind and visually impaired how to move about safely and independently, and they can also help improve the independent living skills of both children and adults with vision impairment [28,29]. This type of training can only be provided by certified trainers. However, according to the interviewees working with the main organizations offering specialized services to people with vision impairment, there are neither locally certified O&M specialists in the UAE nor any institutions offering accredited programmes in this field.

Several organizations in the UAE, such as the Emirates Association for the Visually Impaired, Tamkeen, and Zayed Higher Organization, have offered O&M training at various times by hiring certified mobility trainers from Bahrain, Jordan, and Lebanon. However, these training courses have been limited in number and

delivered within short periods of time (one or two weeks), which is not enough for trainees to develop the relevant skills sufficiently. Additionally, the Ministry of Education has arranged orientation and mobility training within its national programme to train some special education teachers to work with students with vision impairment. However, this training was not sufficient to qualify them to provide O&M training to students with vision impairment at the school level. In their interviews, some of the disability support staff working in UAE universities stated that blind and legally blind students enrolled to study there had received no O&M training during their school years. As a result, many struggle to move independently on campus, especially during their first year at university.

Some service providers also said that they limit their mobility training to indoor settings to help individuals with vision impairment to move independently inside their schools or workplaces. An administrator at the Emirates Association for the Visually Impaired commented:

The O&M training we currently offer is only indoor mobility training. We do not have a certified O&M trainer. We rely on one of our volunteers who has received O&M training to provide this training.

Finally, the interview responses revealed that there are no organizations in the UAE offering training in independent life skills, which is usually delivered by O&M specialists. One blind research participant commented:

I would like to learn how to cook. I would also like to learn how to do the housework. I like to learn different skills to be fully independent, but there is no organization in the UAE offering any training in life-independent skills.

Assistive technology instructional specialists

In recent years, there has been a global increase in the need for certified assistive technology instructional specialists for people with vision loss. This is due to the vital role that assistive technologies can play in various aspects of the lives of people with vision impairment, including education, work, and the independent accomplishment of day-to-day activities [30].

Analysis of the interviews conducted for this research indicated that many students with vision impairment studying at government schools are provided with some assistive technology.

However, the Ministry of Education leaves responsibility for training such students in the use of this technology to the companies supplying the equipment. The main reason is that it currently has no assistive technology specialists, while very few disability staff in the Ministry of Education have experience in using the technology. Consequently, many students with vision impairment currently start university lacking even the minimum knowledge needed to use a computer, which is an essential device for performing university work independently.

The interviews also revealed that only a few organizations in the UAE can offer assistive technology training to people with vision impairment. Furthermore, most organizations lack assistive technology specialists. Instead, they rely on experienced users to provide training sessions.

An administrator at Tamkeen Centre commented:

We offer computer classes to people with vision impairment, but we could not find a certified specialist to teach these classes. Thus, we hired an IT specialist, and we arranged training for her in how to use the screen reader. However, I would prefer if we could hire a certified specialist because their effectiveness in providing this kind of training would be better.

The role of UAE higher educational institutions in preparing disability specialists for people with vision or hearing impairment

The second main research question of this study concerned the role of UAE higher educational institutions in preparing the needed specialists for people with vision or hearing impairment. To address this question, accredited university programmes in the UAE were tracked over a period of three years (2018–2020) using data gathered from the official website of the UAE's Commission for Academic Accreditation (CAA). The last update on the CAA website was in September 2020. Table 2 lists the relevant UAE universities and their disability programmes offered in 2018, 2019, and 2020.

In 2018, the UAE had 73 licensed higher educational institutions offering 938 accredited programmes. Of these, as Table 2 shows, just five were related to disability studies—specifically in special education—at four universities [31–33]. In 2019, there were 80 licensed higher educational institutions in the UAE

Table 2. Accredited disability-related programmes offered at UAE higher education institutions in 2018, 2019, and 2020.

Year	University	Accredited programme
2018	Abu Dhabi University	Master of Science in Special Education
	Al Ain University of Science & Technology	Bachelor of Education in Special Education
	United Arab Emirates University	Bachelor of Education in Special Education
	United Arab Emirates University	Doctor of Philosophy (PhD) Concentration: Special Education
	Zayed University	Master of Education in Special Education
2019	Al Ain University	Bachelor of Education in Special Education
	British University in Dubai	Master of Education in Special and Inclusive Education
	British University in Dubai	Postgraduate Diploma in Special and Inclusive Education
	Emirates College for Advanced Education	Doctor of Philosophy in Education: Special Education
	Emirates College for Advanced Education	Master of Education in Special and Inclusive Education
	United Arab Emirates University	Bachelor of Education in Special Education
	United Arab Emirates University	Doctor of Philosophy (PhD) Concentration: Special Education
2020	Abu Dhabi University	Master of Science in Special Education
	Al-Ain University	Bachelor of Education in Special Education
	British University in Dubai	Master of Education in Inclusive and Special Education
	British University in Dubai	Postgraduate Diploma in Inclusive and Special Education
	Emirates College for Advanced Education	Master of Education in Inclusive and Special Education
	Emirates College for Advanced Education	Doctor of Philosophy in Education: Special Education
	United Arab Emirates University	Bachelor of Education in Special Education
	United Arab Emirates University	Bachelor of Science in Speech Language Pathology
	United Arab Emirates University	Doctor of Philosophy in Special Education
	University of Birmingham in Dubai	Postgraduate Certificate in Inclusion and Special Education Needs

Source: [31–35].

offering 1027 accredited programmes, of which just seven were related to disability studies across four universities. All seven programmes were in special/inclusive education [32,34]. Finally, in 2020, there were 67 licensed higher education institutions in the UAE offering 1255 accredited programmes, of which 10 were related to disability across six universities [35].

Table 2 also shows that between 2018 and 2020 no university in the UAE offered any programmes related to visual impairment, while only one programme was offered in hearing impairment, namely Bachelor of Science in Speech-Language Pathology, at UAE University in Al Ain. Some of the interviewed service providers mentioned that they had contacted various universities to discuss the possibility of offering specialized programmes in vision or hearing impairment. However, as one participant noted, these universities are reluctant to establish new programmes:

I met with some local universities and asked them to open new disciplines in sensory impairments. We were asked by some universities to provide them with enough students to establish those programmes, while other universities asked us to ensure job opportunities for their graduates if they establish those programmes, which is difficult for us to do.

The role of other organizations in the UAE in preparing needed disability specialists for people with vision impairment or hearing impairment

The third research question in this study concerned the role of other institutions. Although universities in any country play an important role in developing the necessary disability specialists, other institutions are equally significant. These include non-profit organizations, relevant ministries, and specialized organizations offering services to people with disabilities.

In the UAE, two non-profit organizations offer services to people with hearing or vision impairment: the Emirates Deaf Association, located in Abu Dhabi, and the Emirates Association for the Visually Impaired, located in Sharjah. Both associations offer social, cultural, and recreational programmes for people with vision or hearing impairment. The Emirates Deaf Association also offers short courses in sign language for people wanting to learn how to communicate with individuals who are deaf, although these courses are not intended to develop sign language specialists. Similarly, the Emirates Association for the Visually Impaired offers training in braille, O&M, and the use of assistive technology to individuals with vision impairment, although this is also not intended to develop specialists in these areas. In short, neither association offer any certified programmes to develop qualified disability specialists.

Similarly, the Ministry of Education is unable to offer specialized programmes in either vision or hearing impairment. As one member of its administrative staff pointed out:

We cannot offer certified programmes to create disability specialists. If we formed a partnership with any university in the UAE, we might be able to do that.

In contrast, for almost 15 years, Sharjah City for Humanitarian Services has taken a different and more effective approach to train the disability specialists they need by signing a cooperation agreement with a specialized organization in Belgium to provide training to their staff. Through this programme, they have sent several staff members overseas to undertake specialized training and brought some overseas specialists to Sharjah train their staff. They have also collaborated with the University of Sharjah to offer a Diploma in Special Education. An administrator working at Sharjah City for Humanitarian Services commented:

Sharjah City for Humanitarian Services helped a lot in creating new disability specialists. For example, they sent me to the USA, where I completed a one-year certified diploma in early intervention.

Overall, however, the UAE's specialized disability organizations have been unable to play more than a very limited role in developing the needed disability specialists in vision impairment or hearing impairment because of a lack of sufficient resources and experienced personnel.

Discussion

The findings of this study, which adopted the human rights-based model of disability, can be linked to the rights identified in UAE Law No. 29 of 2006 for persons with disabilities. This law requires persons with disabilities to be provided with the necessary specialized services in all educational institutions, and for qualified specialists to be prepared for working with such persons [11]. The findings indicate that students in the UAE with vision and/or hearing impairment struggle to receive the specialized services they need, whether in schools, universities, or specialized disability centres. In particular, there is a significant shortage of qualified specialists to provide training, education, and rehabilitation support for students with vision or hearing impairment.

More specifically, the interviews revealed that the most needed personnel for students with vision impairment are teachers for the visually impaired, braille trainers, O&M trainers, and assistive technology specialists, while the specialists needed for students with hearing impairment are teachers of the deaf or hard of hearing, speech therapists, and sign language specialists. Although some studies have addressed the need for some of these specialists in the UAE [2,12,19], they did not identify the needs at the school level, particularly the need for specialized teachers to support students with vision or hearing impairment.

Regarding the role of UAE higher educational institutions and specialized disability organizations, the findings indicate that they do not currently play an active role in preparing the needed personnel in vision and hearing impairment. Among Emirati universities, for example, only one programme was offered in either visual or hearing impairment between 2018 and 2020, namely Bachelor of Science in Speech-Language Pathology, while no other certified programmes were offered by any specialized disability organization.

The interview data suggest four main reasons why UAE institutions have so far played only a limited role in preparing the personnel needed for supporting students with vision or hearing impairment. The first factor is the absence of a unified national plan addressing the needs of persons with disabilities in the UAE. For instance, the country's national plans for sustainable development, such as the UAE 2021 Vision and UAE Centennial 2071, do not specify any strategic goals for individuals with disabilities [36,37].

Second, interviewees commented on the lack of accurate statistics for people with disabilities, and this is further evidenced by the statistics from the Ministry of Community Development (the official body responsible for the affairs of persons with disabilities in the UAE), which does not provide any data about the total number of people with disabilities, their age groups, or the number in each disability group. Instead, information is limited to the number of individuals registered for a disability card and the number of students enrolled in centres for people with disabilities [38]. However, without data on the total number of persons with vision and hearing impairments, their age groups, and the

severity of their impairments, it will be difficult to develop a national plan to meet their current and future needs [3,39,40].

The third factor is that the number of people with hearing or vision impairment is usually smaller than that for other disabilities, such as intellectual disabilities and learning difficulties. Thus, universities hesitate to offer specialized programmes to meet the needs of these two groups. As Mason and Davidson [40] note, "since persons with blindness or low vision comprise only about 0.1% of the U.S. population, most educators have no impetus for obtaining a greater understanding of the issues, needs, and solutions pertaining to this group" (p.29).

Fourth, interview responses from the service providers indicate that the current disability programmes offered at UAE universities do not match the needs of service providers to support individuals with vision or hearing impairment. With one exception, all programmes in disability studies at UAE universities focus on special and inclusive education. Consequently, special education teachers cannot meet the unique needs of students with vision or hearing impairment who require specific training in braille, O&M, sign language, and speech therapy.

Limitations and future research directions

This study has two main limitations. The first is the small research sample. Data were gathered from 20 employees working at 10 different organizations in the UAE. The study also did not target students with vision or hearing impairment or their parents. Future research should investigate how much the lack of training and rehabilitation services affects the self-reliance and academic performance of students with disabilities in the UAE. Future research should also identify the unique needs of other disability categories, such as students with learning difficulties, autism, and/or ADHD. Finally, further research is needed in the UAE about rehabilitation support for parents as well as adults with disabilities.

Implications

This study identified the disability specialists that are currently needed most for students with vision or hearing impairment in the UAE based on the needs of the service providers. This information will be very useful for the Ministry of Education to design a national plan to prepare the needed specialists to work with these students. The study also indicated the need to offer specialized disability programmes in higher education to meet the unique needs of individuals with disabilities, rather than offering general programmes in inclusive and/or special education.

Conclusion and recommendations

This study investigated the role of UAE institutions in developing local disability specialists for people with vision or hearing impairment. The findings indicate that UAE institutions do not play a sufficiently active role in preparing this specialized personnel. The main reasons for this are the absence of a unified national plan addressing the needs of individuals with disabilities in the UAE; the lack of accurate statistics regarding the number of people with disabilities, their age groups, and the types of disability they have; and the unwillingness of universities to offer programmes in vision or hearing impairment due to the small numbers of this disability category compared to other disability groups.

The study revealed that the specialists that are most urgently needed to support students with sensory impairments are speech

therapists, especially those who can work with children with other disabilities. Thus, it is strongly recommended to offer more speech therapy programmes at different universities across the UAE. In addition, Emirati students who are applying for scholarships to study overseas should be directed to specialize in those disability programmes that are currently not offered in UAE universities, such as teachers of the visually impaired and teachers of the deaf or hard of hearing. Finally, those special education teachers who are interested to be an O&M specialists should be directed to complete an O&M programme in countries like the USA, the UK, and Canada. For example, in the USA, several universities offer an O&M programme, such as the University of Alabama, the University of Arkansas Little Rock, and the University of Northern Colorado. These programmes usually are offered in blended learning mode so that students can complete coursework online before doing field training in the USA to obtain the O&M certificate [41].

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13. What kind of training or programs does your organization offer to develop local disability specialists for people with vision impairment?
- C. Reasonable accommodation and disability specialists available for people with hearing impairment
1. What kind of services does your organization offer to people with hearing impairment?
 2. How many speech and language therapists are currently working in your organization? Are these specialists certified?
 3. How many hearing instrument specialists are currently working in your organization? Are these specialists certified?
 4. How many sign language specialists are currently working in your organization? Are these specialists certified?
 5. How many specialist teachers for hearing impairment are currently working in your organization? Are these teachers certified?
 6. What other specialists are currently needed for people with hearing impairment in your organization?
 7. What are the nationalities of the disability specialists that currently working at your organization for people with hearing impairment?
 8. How many local Emirati specialists are currently working in your organization for people with hearing impairment, and in which areas?
 9. Do you think that the number of Emirati specialists for people with hearing impairment is enough?
 10. If not, why do you think there is a limited number of Emirati specialists for people with hearing impairment in the UAE?
 11. Do you have enough specialists to provide enough training and support for people with hearing impairment?
 12. If not, how many specialists do you still need, and in which areas?
 13. What specialists are most needed to support people with hearing impairment?
 14. What training and programs are currently offered in your organization to develop local disability specialists for people with hearing impairment?

Appendix *Interview guide*

- A. Interviewee profile
1. Which organization do you work for?
 2. What is your gender?
 3. What is your position?
 4. How many years' experience do you have in this area?
- B. Reasonable accommodation and disability specialists available for people with vision impairment
1. What kind of services does your organization offer to people with vision impairment?
 2. How many braille specialists are currently working in your organization? Are these braille specialists certified?
 3. How many orientation and mobility specialists are currently working in your organization? Are these orientation and mobility specialists certified?
 4. How many assistive technology specialists are currently working in your organization for people with vision impairment? Are these specialists certified?
 5. How many life-independent skills specialists for people with vision impairment are currently working in your organization? Are these specialists certified?
 6. What are the nationalities of the disability specialists who are currently working in your organization for people with vision impairment?
 7. How many local Emirati specialists are currently working in your organization for people with vision impairment, and in which areas?
 8. Do you think that the number of Emirati specialists for people with vision impairment is enough?
 9. If not, why do you think there is a limitation in the number of Emirati specialists for people with vision impairment in the UAE?
 10. Do you have enough specialists to provide enough training and support for people with vision impairment?
 11. If not, how many specialists do you still need, and in which areas?
 12. What specialists are most needed by people with vision impairment?
- D. Recommendations
1. What type of disciplines/programmes should be offered at UAE universities to develop local disability specialists for people with vision impairment?
 2. What type of disciplines/programmes should be offered at UAE universities to develop local disability specialists for people with hearing impairment?
 3. What are the other Emirati institutions that should offer programs to develop certified disability specialists?
 4. What should Emirati institutions do to attract more locals to work as specialists for people with vision impairment or hearing impairment?