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Editorial

Dear readers,

It is with great joy that I am introducing this new issue of the DCID journal. It has taken a while to publish this first issue of the DCID journal and before saying more about this I would like to thank all people who made it possible to publish the journal. One may argue that this has been the case for the past 3 decades and that is true. However, this is a very special issue for various reasons. It is the last issue published by Ubiquity Press and I can only say that they have done a great job in supporting the entire editorial team during the past few years. Another reason is the fact that the journal had to rely, from the 1st of January of this year, almost entirely on volunteers. Next to the immense support always given by the reviewers, essentially all editorial work was done on a voluntary basis. A big thank you to all people who want the journal to continually offer knowledge and new insights and ideas to its readers. We, however, still hope that better times will come and that the University of Gondar in Ethiopia (now owner of the journal) will continue to publish the journal and play a pivotal role in continually informing the field about research outcomes; further try to improve the relevance of the journal for its readers, especially and primarily for those from low-and middle-income countries. New sections will be added to the journal to engage readers in debates as we strongly believe these should not be left to the elite, to the West, to influential INGOs or to professional boards.

We hope that in the next issue we can publish an article about the recent study done by a master student at the VU University in Amsterdam: a study that focused on the relevance of the journal for authors, editorial board members as well as the readers. To shed some light on the outcomes of that study, I can already inform you that the value of the DCID journal is based on two main aspects. First, the practical usefulness of the journal's content. Second, the journal is recognised for providing individuals from LMICs an opportunity to express their perspectives and share insights regarding the realities they experience.

I would also like to welcome Dr Solomon Mekonnen, who will be the new editor-in-chief, and Tesfahun Melese as the new journal manager. I will of course continue to support them, and I am asking you to do the same.

A very interesting journal lies in front of you. It consists of a number of very valuable articles, including stimulating and perhaps controversial letters to the editor. I urge you to read the articles – some of them are outstanding – and letters

to the editor. The new section – book reviews – will discuss 2 recently published books that may be of interest.

Recently, I attended in Ghana a conference with the theme 'improving the quality of life of persons with disabilities along with the life course by research and practice'. I was honoured to be the keynote speaker and was blessed to be able to talk for 30 minutes and answer questions for 15 minutes. I decided to keep my presentation very practical and focus on ramping up services for people with disabilities in Ghana rather than paying too much attention to the fact that the audience was largely formed by academia; some with and most without disabilities. The majority belonged to the elite; disabled or not. Therefore, the line of my presentation was not focusing on the need to ramp up services for those already having access to more than the most elementary services. I was not focusing either on those who can afford to send their child (with a disability) to a private school or follow a post-graduate university study. No, I wanted to show that in a country like Ghana – in spite of good intentions, law and legislation, and even great policies – the majority (possibly at least 90%) of people with disabilities live in miserable conditions. These people won't be helped with increased numbers of professionals such as therapists. These people are trying to survive. They often live in abject poverty; many of them face stigma; either from society or themselves. They face rejection by society because of rock-hard belief systems including the bondage of witchcraft. Something else is thus needed. Rehabilitation in a narrow medical focus is not offering the solution to the challenges faced by the majority of people with disabilities and their families. A much broader, much more comprehensive approach, that takes the context of disability not just into consideration but also includes related actions to ensure some fundamental determinants of inequality and lack of development are also tackled.

Increasingly I believe that if we really want to make a difference to people's lives, we for instance must better understand the importance of culture, tradition and religion. Contemporary development cooperation– very much based on Eurocentric interpretations of the world – has shown for many years little to no attention to the importance of religion for instance. Yet, 86% of the world population is (deeply) religious.

Next to this omission, there is another issue as well: a growing focus on inclusion on one hand but at the same time the increasing support in affluent societies for minimalizing the chances of getting (a child with) a disability to such an

extent that – in an often subtle way – it becomes clear that there is little room for disability and thus for those who have a disability too. What about the impact of genetic testing and pre-term testing to detect an ever-growing number of disabling conditions allowing parents to decide for or be persuaded to choose for an abortion? Our inability to accept disability seems to be not one that is just something that happens in traditional, rural or remote societies but is – at least – equally prominent in modern western society. I thus see this as a global concern and unless we start acknowledging this, we may just keep up the inclusion façade.

With all the good intentions of social and human rights models, there is in my view a risk that the strong and the most intelligent people with impairments living in urban areas are getting the most and best opportunities to develop. This can further aggravate the situation of the people who are weak and vulnerable. The mother of a child living with severe and multiple disabilities in rural Ghana, Burundi or Bangladesh isn't helped with legislation alone. She searches for the best services for her child because she wants her child to participate, to develop, to live her life. However, the child may be so severely disabled that interventions are 'limited' to care and love; to spiritual support and counselling to help this mother to accept her child. Who are we to despise this love and care? We rather nurture charity as life in this world would be unbearable if it didn't exist anymore.

The – at times – extreme attention these days for economic progress; for strong and successful people, can be a symptom of a world that doesn't care about those who are weak, poor or 'limited'.

I hope that we, the readers of this journal start realising the above and start looking for old and new ways to find solutions to the needs and challenges of children and adults with disabilities in low resource settings.

On the 25th of May this year, 194 UN member stated committed themselves during the seventy-sixth World Health Assembly to ensure that everyone, including the poor and the most vulnerable can access quality rehabilitation without incurring financial hardship. Let it not be just a nice political(ly correct) statement but let it become true in the lives of so many people with disabilities, as well as reality for all those – usually – mothers and grandparents who take care of children with disabilities.

Your editor-in-chief.

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ORIGINAL RESEARCH ARTICLES

Understanding Barriers and Facilitators to Inclusive Education for Grade 7 - 9 Students with Disabilities in Ethiopia and Ghana: A Qualitative study

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ABSTRACT

Purpose: *Youth with disabilities in Africa continue to face significant challenges in accessing and participating in general education settings. This study aimed to explore the barriers and facilitators to inclusive education among youth with disabilities in Grades 7-9, in Ethiopia and Ghana.*

Method: *A qualitative descriptive approach was adopted to explore the lived experiences of students with disabilities in Grades 7-9 in Ethiopian and Ghanaian schools. Five focus group discussions were conducted, with an average of six students in each focus group. Thematic analysis was used to explore and analyse study participants' schooling experiences.*

Results: *There are commonalities and differences in the barriers and facilitators to inclusive education among students with disabilities in Ethiopia and Ghana. Participants reported that psychosocial, physical, systemic, and resource-related barriers hinder their access to education and school participation. They also identified facilitators including emotional and material support from various sources, and personal coping strategies and perseverance in overcoming barriers to their schooling.*

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Conclusion: *A complex system of structural, institutional, and individual factors affect school enrolment and participation among Grade 7-9 students with disabilities in Ethiopia and Ghana. Concerted and multisectoral inclusive education programming and supports are needed.*

Key words: *inclusive education, students with disabilities, disability, Africa, Ethiopia, Ghana*

INTRODUCTION

The Universal Declaration of Human Rights provides that "everyone has the right to education" (United Nations, 1948, Article 26). Article 24 of the United Nations Convention on the Rights of Persons with Disabilities (CRPD) recognises the right of persons with disabilities to inclusive education, without discrimination and based on equal opportunity (United Nations, 2006). Despite these global commitments to inclusion, there are causes for concern about the implementation of CPRD as it relates to (a) student outcomes; (b) trained teachers; (c) attitudes; and (d) adequate facilities, classroom support (Plotner and Marshall, 2015), and learning resources (Mupa and Chinooneka, 2015). Young Africans with disabilities continue to face significant challenges in accessing, navigating, and succeeding within general educational settings (McClain-Nhlapo et al, 2018; Shakespeare et al, 2019; Duri and Luke, 2022). Prejudiced practices have contributed to children without disabilities receiving priority access to educational opportunities over children with disabilities (UNESCO, 2015). Even when children with disabilities are willing to attend school, most schools are inaccessible and do not provide disability-related accommodations (Mont, 2021). Moreover, poverty, environmental barriers, a lack of accessible transportation, negative attitudes, and the lack of social protection and support services for children with disabilities have limited their access to (inclusive) education (Plotner and Marshall, 2015; Hästbacka et al, 2016). As a result, school enrolment for youth with disabilities remains very low, with three in ten children never having been in school, and only 48% of these – sometimes even below 10% - completing primary schooling (African Child Policy Forum, 2011).

Ghana and Ethiopia, the focus of this study, have children with disabilities living in underserved rural areas, with limited to no access to necessary education, health, or social services. This is despite both countries signing and ratifying the CRPD and implementing various programmes toward inclusive systems. Ethiopia and Ghana are democratic republics and despite differences in their legislative

governance structures, the respective Ministries of Education centrally oversee the agencies responsible for education from kindergarten to tertiary level.

The Ghanaian school system constitutes six years of primary, three years of junior secondary, and three years of senior secondary schooling (6+3+3). Grades 1-9 (primary and junior secondary schooling) are treated as basic education. Ethiopia operates with eight years of primary, two years of general secondary and two years of college preparatory schooling (8+2+2). Grades 1-8 are treated as basic/ primary education in Ethiopia. In both countries, the completion of basic education comes with formative student assessments, and performing well on these examinations is mandatory for students to proceed to the next level. For this study, Grades 7-9 were selected for their status as upper-level basic education and due to their relevance in the educational transition of students. Grade 8 in the Ethiopian education system represents a transitional class, involving a national examination to screen who progresses from primary to secondary level of schooling. Grade 8 also has the highest dropout and lowest progression rate for all students, including students with disabilities (Woldehanna, 2021). In Ghana, Grades 7-9 register a steep decline in student completion rate (Adam et al, 2016). To date, there have been limited studies internationally describing barriers and facilitators to inclusive education at this level of schooling (Huus, 2021).

Objective

This study aimed to explore, (a) the experiences of students with disabilities in these middle/transitional school grades, which, based on their performance on the national exam, determines their educational trajectory and, ultimately, occupational opportunities, and (b) the contributing factors to successful transition from primary to secondary schooling – as well as persistent challenges. The study addresses the key questions about factors enabling and hindering inclusive education by exploring the experiences before (grade 7), during (grade 8), and after (grade 9) students transition to secondary education. The study engages in a comparative exploration of barriers and facilitators of inclusive education for youth in key grades 7, 8, and 9 in Ethiopia, and Ghana.

METHOD

Study Design

This is a qualitative descriptive study, which drew from hermeneutic-phenomenological approaches (Creswell, 2007) to explore and interpret the

experiences of students with disability in Ethiopia and Ghana (grades 7-9). The authors aimed to understand the diverse lived experiences of students with disabilities along the key abiding concerns of barriers and facilitators towards a negotiated interpretation and conceptualization of access to education and inclusive education in the two countries. Data collection involved five in-person focus group discussions, two in Ethiopia and three in Ghana, with an average of six participants each (range: 5 to 8).

Participants

Study participants were purposively identified through community-based rehabilitation centres, schools, and disability advocacy organisations. In Ethiopia, focus groups were conducted in Gondar (with participants identified through the University of Gondar - Community-based Rehabilitation programme) and Dessie, South Wollo (with participants identified through local Organisations of Persons with Disabilities - OPDs). In Accra, focus group discussions were conducted with participants identified through disability associations, local schools, and advocacy groups.

To facilitate a free and diverse exchange of ideas and information, while recruiting the authors balanced participant homogeneity (organising participants of similar Grade levels into one focus group) and heterogeneity (ensuring participant diversity by gender and disability type) (Halcomb et al, 2007). Participants above the age of 18 provided written informed consent, and for participants younger than 18, the caregivers or guardians provided informed consent while the minors were asked for their assent.

Data Collection

Data collection involved five in-person focus group discussions, two in Ethiopia and three in Ghana, with an average of six participants each (range: 5 to 8).

In Ethiopia the focus groups were conducted in Amharic, the widely spoken and working language of the federal government of Ethiopia. In Ghana, English was the language used. Participants with hearing impairments used a sign language interpreter.

Semi-structured guides were used, comprising an introductory section (confidentiality, ethics, ground rules), warm-up questions on personal data, main and probing questions, and a conclusion. The guides were prepared in English

first and qualified language experts translated them into Amharic for Ethiopia. Questions were pre-tested to ensure their usefulness in helping moderators conduct fruitful discussions. All focus group meetings were in person, while adhering to relevant local Covid-19 protocols. Two recorders were used simultaneously to capture discussions.

Moderators began with introductions of participants and gradually moved to discussing schooling experiences, personal career goals, barriers and facilitators to education, participation in extracurricular activities, and ways to improve access to education among the youth. Moderators used group processes that aimed at encouraging participants to share, reflect, and challenge their views (Scheelbeek et al, 2020). Note-takers summarised participants' ideas shared during the discussions.

Data Analysis

Audio-recordings of discussions were transcribed verbatim. In Ethiopia, Amharic phonetics was used to transcribe audio-recordings, which competent language experts translated into English transcripts. A qualitative descriptive analysis was used (Kim et al, 2017). First, three researchers carefully and independently reviewed the transcripts to familiarise themselves with the data and took memos important for data coding; second, all researchers from Ghana, Ethiopia, and Canada virtually discussed ongoing analysis, on a biweekly basis, to identify unique and shared cases across the study sites, and, inductively and iteratively generated codes, subthemes, and themes for data analysis; third, researchers in each site reviewed and revised the codes, which they shared and discussed to refine and finalise; finally, researchers used the code list to produce reports using NVivo and draft a synthesised report on the experiences of participants.

This iterative analysis identified two themes that underpin the experiences of students with disabilities in both countries: Psychosocial, physical, and systemic challenges (barriers); and Coping strategies and supports (facilitators). Study participants identified several factors that hinder accessing and/or continuing education, and personal strategies and supports that enable them to access and/or continue education.

Ethics Approval

Ethical clearance was obtained from the institutional Ethics Review Boards of the University of Gondar (Ethiopia), Ashesi University (Ghana), and Queen's

University (Canada).

The study was carried out with respect for the integrity of the informants. All informants gave their consent to record the interviews and use the material for publication in anonymised form.

RESULTS

Sociodemographic Profile of the Participants

Participants were 31 students with hearing (7), visual (13), and physical (11) impairments. There were 10 females and 21 males and their ages ranged from 14 to 25 years, as presented in Table 1.

Table 1: Summary of Sociodemographic Characteristics

Attribute	Ghana	Ethiopia
Age*	16-22 years	14-25 years
Gender		
Male	10	11
Female	6	4
Type of disability		
Visual impairment	6	7
Hearing Impairment	5	2
Physical Impairment	5	6
Total	16	15

* Age of participants is usually higher than the standard age group for Grades 7-9 due to the fact that children with disabilities often begin schooling at older ages than their peers and/or experience higher rates of Grade repetition.

Psychosocial, Physical, and Systemic Barriers

In both countries, study participants discussed the effects of psychosocial (attitudinal and lack of support), physical, and systemic barriers to starting or continuing education. Many raised the challenges of scarcity of resources and educational materials to meet basic needs, and the psychological effects of isolation and stigma as hindrances to their participation and success in education.

Psychosocial Barriers

The participants reported negative attitudes and poor psychosocial support from

their significant others like peers, family and community members and teachers. Both in Ethiopia and Ghana, they discussed how stereotypes, prejudice, stigma and discrimination that emanate from community values and institutional contexts undermine public perception on disability and possible supports to students with disabilities.

> *"What I want to say is that in our area persons with disabilities are seen as very weak. And there is no support for the weak. Only the strong and powerful take what they want. There is no such effort or view by people to support the disabled so that they may change their lives"* (Participant in Ethiopia).

The discrimination that students with disabilities faced caused them psychological distress which resulted in avoidance of socialising with peers without disabilities.

> *"The attitude of the society where I grew up makes me have great pain. I cannot go with my peers because of disability, so it has a lot of impact on my life"* (Participant in Ethiopia).

This disabling environment also impacted their capabilities to perform better in education. They claimed to usually be labelled as low academic performers. They stated that community members frequently used traumatizing words to bully and tease them.

> *"There is an aspect that, even though I'm happy with what I'm learning of the Braille and everything, like my brother said, the teasing, sometimes, it makes me unhappy"* (Participant in Ghana).

It is not unusual for school authorities to quietly ignore reports of bullying, as reported by a participant.

> *"I got teased and bullied a lot because of my disability at the farm* (at their village). *I hated the place. I thought a lot about committing suicide"* (Participant in Ethiopia).

Consequently, students with disabilities reportedly felt ashamed of their disability, and responded in compromising ways.

> *"At school I used to cover my hand with a head scarf so that people cannot see it. I was so ashamed of my disability"* (Participant in Ethiopia).

> *"I was so ashamed of my disability. I avoided participation in sports. I get very angry when people ask me about my disability"* (Participant in Ethiopia).

Physical Barriers

The physical landscape and built areas of the schools and communities usually hinder the movement and participation of persons with disabilities. A participant from Ethiopia raised the problem of inaccessible school buildings that, due to lack of ramps, made movement difficult for students with physical impairments.

> *"Getting into the classroom is a painful experience for me. I find it very difficult to go up and down the steps. It gives me pains in my back and legs"* (Participant in Ethiopia).

It was a similar problem in Ghana.

> *"In the school, you see plenty gutters around and someone* (who cannot see) *who does not know will just bump into it and get hurt. And it's very bad because some of our buildings too are spoilt so at times, you don't know where to pass and you don't know how to move your legs around. So, some feel it's difficult to walk around on the campus"* (Participant in Ghana).

Participants in Ethiopia raised a unique challenge related to the inability of students with disabilities to access school sanitation facilities, inconveniencing them to wait until they return to their homes.

> *"The problem is the school. In my school, the toilets are far away from the classrooms. I did not go to the toilet in my stay there. We entered to class at 8:00 morning, and I did not go the toilet till I went back home in the afternoon"* (Participant in Ethiopia).

Though they did not consider their school facilities and sanitation arrangements inaccessible, as did their Ethiopian counterparts, participants in Ghana raised security issues that make them feel compromised while using sanitation facilities or simply going about their usual school business.

> *"One thing that we are not comfortable with is that sometimes when we are washing or we are making ourselves fine, the hearing people in the environment, they come to spy and looking at us. … they want to see us"* (Participant in Ghana).

> *"Our school, because we have problem with the* (short) *walls, stealing and theft cases is so much from the hearing community. So, we need security and CCTV camera so if anything gets missing, we can easily trace and get them. We need security officers"* (Another participant in Ghana).

Systemic and Institutional Barriers

In both countries, participants frequently raised non-inclusive curricula, lack of trained teachers, inaccessible educational materials and school facilities, inadequate school disability support services and limited social services accessibility as manifestations of systemic barriers to their participation and success in education.

With few specifically-trained inclusive education teachers, many students with disabilities are taught in regular classes, along with students without disabilities, by teachers with no training in special needs and inclusive education.

> *"We need teachers who will teach only the deaf. For example, like my blind colleagues who said that sometimes the sighted are reading and they don't have books to read, leaving them behind. So, they should also give us teachers who are for the deaf to teach us"* (Participant in Ghana).

The same participant added,

> *"I think the government should train more teachers to become IT users for us, the visually impaired".*

Consequently, students with disabilities stated that they suffer from communication barriers and non-inclusive educational assessments. Despite the expectation that they should receive special considerations in schooling because of their disabilities, participants claimed that teachers did not support them during exams and tests, and used inappropriate assessment tools to evaluate their performance.

> *"Sometimes during Basic Education certificate examination, the deaf students perform poor score. They are always late, and they are not fast. So, if the teachers take their time to teach them, they'll do better. The deaf people can, they can also learn fast"* (Participant in Ghana).

There was no difference in Ethiopia.

> *"The teachers do not consider our cases when they mark our exams. They are not helpful. They even do not motivate students to support us"* (Participant in Ethiopia).

Communication barriers primarily affected students with hearing impairments.

> *"The teachers may not understand me when I use sign language. Even now in*

Grade 9, when the teachers ask me, my friend tries to translate it" (Participant in Ethiopia).

This was reiterated by a participant in Ghana.

"Sometimes, when they write the note on the board and leave the class, sometimes we find it difficult to understand what is going on. But notwithstanding, I continue to attend the school. But no detailed explanation with a sign, so I continue, I try what I can do" (Participant in Ghana).

The lack of personal assistants limited classroom participation and active learning among students with disability, and created a difficult learning environment.

"Since I am not learning using sign language in class, I do not respond when the teachers ask me questions. But, if they make it using sign language, I can easily understand the subject matter" (Participant in Ethiopia).

This challenge, study participants added, is linked to the absence of school-based support packages for students with disabilities.

"My school does not have any support package for students with disabilities. The needs of students with impairments are not considered at all by the school administration. They do not even support us with basic educational materials like exercise books and pens. We were also made to pay for campus security" (Participant in Ethiopia).

Participants in Ethiopia and Ghana also discussed the lack of accessible educational material as a challenge to persons with disabilities at school. The design and content of educational materials were not accessible to students with different types of impairments.

"There are no Braille materials, but I get normal books at school that I cannot use without readers" (Participant in Ethiopia).

A student in Ghana noted a similar challenge.

"We don't have any Braille textbook to use at that place. So, I think some of our friends use laptop, aha. So, I think that one too can help us" (Participant in Ghana).

Participants commented on the inclusivity of the school curricula, especially in courses like physical education and mathematics, and shared their experiences of exclusion from formal curricular activities.

> *"I do not engage in sports activities. When my classmates go to the field for physical exercise sessions, I do not go with them"* (Participant in Ethiopia).

> *"When it comes to balancing and chemical compounds, how to this and that… that makes it difficult because it contains mathematics"* (Participant in Ghana).

Resource-related Barriers

Fulfilling students' basic needs is a fundamental requirement to get them ready for learning. Supporting basic needs is vital for all students, but the challenge is more impactful for students with disabilities, especially as reported by Ethiopian participants, who claimed to be severely challenged to find ad.equate shelter, food, and clothing.

> *"I need financial support for rent and to buy educational materials, clothes, and supplies to keep my personal hygiene. I need those to continue going to school and succeed through high school"* (Participant in Ethiopia).

Ethiopian students with disabilities, of rural origin, stated that while searching for inclusive schools, they were usually forced to migrate to urban areas and get separated from their families and relatives.

> *"Obviously, we all do not have our families to help us, so economically we are poor. If we live together with our families, we can share ideas, we can live together and score better, but now as we live far away from each other, we are not able to alleviate problems we face every day"* (Participant in Ethiopia).

On the other hand, being orphaned created an additional burden for several students to actively and effectively engage in learning.

> *"Some of us are orphans and we need a monthly stipend to buy clothes, to get a haircut, etc. All of us here need financial support, at least pocket money for looking after ourselves"* (Participant in Ethiopia).

Despite several governmental and non-governmental organisations offering financial and material supports to persons with disabilities, study participants claimed these supports benefit others instead of students with disabilities. They discussed how people and organisations raise funds in the name of persons with disabilities without providing them to target beneficiaries. Consequently, many persons with disabilities live in economic hardship. The problem is worse for persons living in the remote areas.

> *"There is one thing I have to say here. We hear that there are lots of support packages and resources for persons with disabilities. But it does not reach the beneficiaries. We rarely get some pens and exercise books at most. We are not getting the benefits being reported by the government and other non-government organisations. Especially those of us living far away from major cities are getting nothing"* (Participant in Ethiopia).

Study participants also discussed the difficulties in obtaining assistive devices such as canes, insoles, crutches, and adaptive technologies like computers and software.

> *"I always needed insoles for support to my shorter leg. If I cannot have a constant supply of this material, I may stop walking to school. It has always been a challenge for me to replace old insoles as my body grows year after year. That is my concern in the future"* (Participant in Ethiopia).

Participants in both countries also identified difficulties in getting assistive technologies to support their learning engagement. Furthermore, participants reported lack of personal assistants, forcing them to ask other students, volunteers, and/or teachers to read or translate lessons into sign language. There were occasions when they could not find anyone to respond to their requests.

> *"It's always a challenge to find volunteer readers from students. It bothers them because they have to do their own schoolwork too"* (Participant in Ethiopia).

> *"English is our problem. Because for the hearing people, they learn it very fast. But other subjects, we are ok. But for English, is our issue. So, the teachers should be able to learn sign language so that they can follow the English for us. So, when we leave the English classes, we are ok. Some teachers, they can't sign well. So, we get problem understanding things. It's an issue"* (Participant in Ghana).

The participants in Ethiopia, unlike their Ghanaian counterparts, stressed the negative impacts of limited social services, such as health, rehabilitation, and transportation, on their participation and success at school. Despite their need for various health and rehabilitation services, students with disabilities stated they did not have adequate access to these services, and shared worries that the lack of services may cause them to leave school sooner than desired.

> *"Because of my poor health condition, there are several kinds of support I need to attend school in the future. My disability situation is deteriorating from time to time"* (Participant in Ethiopia).

Enabling Factors and Facilitators

Study participants in both countries identified factors that they thought have reinforced or enabled their enrolment and continued participation in school. They also identified various coping strategies that they employ to mitigate aspects of their deprivation.

Emotional and Material Support

Students with disabilities discussed the importance of emotional/material support from their family, friends, and teachers.

> *"When I was in Grades 6 and 7, the teachers supported and encouraged us to be active learners. They taught by preparing materials for us. They helped us to promote from one Grade to the other, and we improved and became high achievers. The teachers were cooperative enough to help us. I also thank my mom who always supports me to arrive at this stage"* (Participant in Ghana).

The same participant added,

> *"When we go to school too, our teachers and headmasters are always behind me, encouraging us and teaching us to shape us to move forward"*.

Emotional and material support also came from students' communities – and sometimes more profoundly than from families. A participant in Ethiopia highlighted how a community member financed his medical treatment and convinced the family to send him to school.

> *"I thank the doctor who helped me to learn. My father did not want me to go to school. The Dr. supported me a lot. When my problem/illness aggravated, my father took me to Addis Ababa for medical treatment. I informed everything to the doctor and he convinced my father to change his attitude towards my education. Then after, my father allowed me to go to school"* (Participant in Ethiopia).

The participants also appreciated support from governmental and non-governmental organisations which enabled them to continue schooling. Through schools, students with disabilities have received educational materials, including exercise books and pens, and a monthly stipend.

> *"My school provides exercise books, pens, and related educational materials for students with disabilities. It is not enough because of the high cost of living but*

> *I appreciate that the blind also receive a 350-birr monthly stipend"* (Participant in Ethiopia).

But the availability of these supports is not without its challenges.

> *"We have some common fund that we receive from our districts and most of us, we are not getting it. So, I want to follow up. I will follow up"* (Participant in Ghana).

There were promising improvements in schools' inclusivity and responsiveness to persons with disabilities and their needs, which participants excitedly reported.

> *"I am happy that we learn together much better than ever before. Previously, the school environment was not convenient to us. Now, there is a better condition that we are able to express our ideas freely, we ask questions to our teachers and giving responses. We visually impaired students are happy to live and learn together with other students"* (Participant in Ethiopia).

> *"We are not being abandoned by them that we are visually impaired so they won't mind you… we are being treated equally and fairly"* (Participant in Ghana).

Coping Strategies and Perseverance

Students with disabilities revealed that they devised effective strategies to solve their problems and keep their educational progress on track. They engaged in building positive self-image, creating self-motivation for learning and harnessing their social skills. These strategies enabled them to overcome feelings of inferiority due to their disability.

> *"I do not think my disability will affect my education in the future. I mean I personally do not believe I will have problems with my education because of my impairment"* (Participant in Ethiopia).

Some participants believed that such a positive self-image, coupled with strong commitment to stay in school, improved their school participation and success.

> *"I am determined to get an education. I tell myself not to give up, to go to school no matter what. I do not feel inferior to my non-disabled friends"* (Participant in Ethiopia).

Participants in Ghana made similar comments.

> *"Sometimes, I get to realise that no matter how hard it will be, we'll still cross, whether by boat or plane, we'll still cross the river"* (Participant in Ghana).

Having good social skills has enabled students with disabilities to harness positive networks and relationships with the school community, which improved their learning experiences and outcomes.

> *"I have not experienced any problem in class so far. Everybody at school knows me. I have no problems with my teachers. That's all I can say about what happens at my school? I do not have any problems with the teaching-learning process"* (Participant in Ethiopia).

There was a similar reaction from a participant in Ghana.

> *"I feel good at school. We share jokes, we play together. We do a lot of good things. We interview ourselves, quizzes, entertainment; we learn… we do a lot of good things at school which encourages us to be very good. We do a lot of quizzes, tests, class tests, and other things"* (Participant in Ghana).

DISCUSSION

This study explored the complex structural, institutional and individual issues that affect the school enrolment and participation of students with disabilities in Ethiopia and Ghana. Findings illustrate common and different barriers and facilitators of inclusive education for students with disabilities in Ethiopia and Ghana. Findings highlight that students with disabilities face challenges in the form of systemic, institutional, and psychosocial barriers and resource and support limitations. Study participants mentioned challenges in terms of negative community attitudes towards disability and persons with disabilities, and insufficient resources and financial and social supports for their education as well as in their everyday lives. These barriers were also reported in several studies from USA, India and Canada (Cohen, 1994; Pivik and Laflamme, 2002; Ahmad, 2018).

In both Ethiopia and Ghana, study participants underlined the negative impacts of unfavourable community attitudes and stereotypes on the educational opportunities of persons with disabilities. In communities with low disability awareness, people subscribe to stereotypical views that persons with disabilities cannot perform as well as persons without disabilities, thereby undermining the formers' self-image and educational participation and success, and creating

obstacles to their schooling experience (Laflamme, 2002; Lamichhane, 2013). The present study calls on teachers, family members, and other community members to hold high expectations for all youth with disabilities, regardless of the nature of their impairments.

Physically accessible schools promote inclusivity, though study participants in Ethiopia and Ghana complained about lack of accessible and accommodating schools. They described school buildings as lacking in ramps and with rugged compounds and inaccessible toilets that were far from classrooms. These circumstances make the lives of students with disabilities challenging (Cohen, 1994; Laflamme, 2002; Stumbo et al, 2011; Lamichhane, 2013).

Resource and financial constraints that hinder the educational participation and success of students with disabilities were more frequently mentioned by study participants in Ethiopia than in Ghana. The participants in Ethiopia and Ghana discussed the challenges of meeting their basic needs and obtaining educational materials. This is a chronic scenario in resource-limited countries like Ethiopia and Ghana; and is in line with another study done in Nepal (Lamichhane, 2013).

The Ethiopian students with disabilities in this study indicated that the lack of inclusive post-primary schools in remote villages forced those of rural origin to migrate to nearby semi-urban and urban centres where such types of schools are available – leading to loss of family support, which, with limited school support, compounded their educational challenges. Studies in this area (e.g., Boyden, 2013; Yorke et al, 2021) reported similar findings whereby educational, resource, infrastructural, and quality of life disparities between rural and urban areas force the rural youth to migrate to urban areas. For instance, Yorke et al (2021) reported that even if migrating youth access greater opportunity to continue their higher levels of schooling with increased freedom, it comes at the costs of losing family and community support and experiencing highly uncertain urban living and challenges for the future. For Schewel and Fransen (2018), these consequences of geographic and social mobilities are the natural outcomes of an unbalanced but rapidly expanding educational system that did not prioritise bridging rural-urban disparities in resources and accessibilities (Boyden, 2013; Mupa and Chinooneka, 2015; Yorke et al, 2021). This study also found institutional barriers to inclusive education, including lack of teachers trained in inclusive education, exclusionary pedagogy, inaccessible transportation, and insufficient social and rehabilitation services. These barriers negatively affected teacher-student communications, quality of learning and educational success among students with disabilities.

Similar findings were also reported by other researchers. For instance, a study in Ethiopia (Woldehanna, 2021) found schools in Harar prioritising regular students' academic performance over creating inclusive school environment for students with disabilities. It reported that a particular school was nationally recognised for students' excellent academic performance but it lacked basic considerations of accessibility and inclusion of students with disabilities.

The current study also identified educational supports and personal coping strategies that helped students with disabilities to stay in school. Though on a limited scale, the emotional, financial and material supports from friends, family and teachers have reportedly facilitated education. Government and non-governmental organisations have also supported students with disabilities to continue their education. Several studies concurred with these findings on the role of diverse supports in the educational participation and success of students with disabilities (Burgin, 2004; Genova, 2015; Arishi, 2019). Burgin (2003), for instance, specifically discussed how the involvement of teachers in creating inclusive curricula and supporting students with disabilities has improved students' participation and performance in the school system, and (Arishi, 2019) identified that teacher supports to inclusive education favoured students' integration into the school and their performance. Importantly, the current study findings also emphasise the crucial role of self-determination and commitment of students with disabilities to success in their schooling. Moriña (2019) reported on the positive association between the educational motivation of students with disabilities and their teachers' support and communication to foster a sense of school belongingness and learning outcomes. The supportive factors that contributed to staying at school were the ability to cope with the diverse systemic, institutional and attitudinal barriers through sheer perseverance and inventiveness.

CONCLUSION and IMPLICATIONS

This study, based on participants from Ethiopia and Ghana, revealed that students with disabilities faced significant barriers to inclusive education. It identified commonalities and differences in the two countries in their progress towards promoting inclusive education for youth with disabilities at the critical middle school stage - at the time when the educational trajectory is determined. It is critical that governments, schools, and the community take action to ensure that youth with disabilities are not left behind – particularly at crucial times

of transition in their education. These measures include budgeting for and investing in inclusive education, training teachers in inclusion skills including sign-language and Braille, providing inclusive resources and support, training students with disabilities on life-, social- and communications- skills, and fostering school environments favourable to students' sense of belongingness, engagement and outcomes. Existing toolkits (UNESCO, 2015; Crespi et al, 2022) and empirical studies (Ainscow, 2020) suggest a holistic approach to tailor interventions and create inclusive and learning-friendly environments that the two countries covered in the study could contextualise (Pacific, 2009; Ainscow, 2020; Crespi et al, 2022).

Disclosure

Ethics approval and consent to participate*:* The study was carried out with respect for the integrity of the informants. All informants gave their consent to record the interviews and use the material for publication in deidentified form.

Data sharing statement: We have to abide by the data sharing policy of the Queen's University, University of Gondar, Ashesi University and University of Cape-town; nonetheless, we have included all important information regarding the data presented (No additional data are available).

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Epistemic Access for Students using Assistive Technology in the Introduction of Online Teaching in South Africa

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ABSTRACT

Purpose: *Epistemic access can be explained as a merely physical entry or entry beyond physical access that require supports. The epistemic access and success for students with disabilities remain a topical issue in higher education, more so during the transition to online teaching and learning that was ignited by Covid-19. This study aims to examine how the epistemic access of students using assistive technology was imperilled during Covid-19 lockdown restrictions.*

Method: *This qualitative study is based at this University of Technology in KwaZulu Natal Province in South Africa. A total of twenty-five students with disabilities who use different assistive technologies were identified through purposive sampling, amongst 57 registered students with disabilities. The data was collected through semi-structured interviews and as a means of triangulation, a focus group was also held with thirteen students. The data was thereafter thematically analysed.*

Results: *Students reported difficulties in accessing and utilizing assistive devices, due to lack of appropriate assistive technology, technical skills, poor network, and support. This perpetuated discrimination, social exclusion, and injustices in higher education for students with disabilities. Some had to double their efforts to access their lessons and assessments. Even though their epistemic access was disrupted; they displayed a resilient character.*

Conclusion: *Online or blended teaching and learning appear to be the future trend in higher education, thus; effective plans and systems alignment are required to avoid exclusion of students with disabilities in the digital learning space. To continue to promote social inclusion and inclusive education in higher education institutions, the provision and procurement of assistive technologies must be prioritised. Accommodation of students with disabilities should*

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be amongst other key considerations in the planning of future teaching and learning.

Keywords: *students with disabilities, social inclusion, social justice, inclusive education, Covid-19.*

INTRODUCTION

According to the World Health Organisation (WHO) and United Nations Children's Fund (UNICEF) (2022) report, approximately 2.5 billion people rely on assistive technologies or devices to carry out their daily activities. Even though the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) of 2007 endorsed the use of assistive technology as means of promoting full realisation of human rights, quite a few people with disabilities still remain without assistive technologies (AT) or devices which adversely affect their lives (Matter and Eide, 2018). Many African countries are struggling to supply AT (WHO, 2021); for example, South Africa can only provide 25% to 65% of AT to its deserving population (Visagie, Scheffler, Seymour,2020; Mji, 2020; McIntyre, Cleland, & Ramklass, 2021). This is likely to have dire consequences for African students with disabilities in terms of epistemic access.

The epistemic or epistemological access and success concept associated with Morrow's research advocates for equal physical access and teaching and learning that embraces diversity. Also, it advocates for gaining access to knowledge which could be extended to the content of knowledge, provider of knowledge, the environment or context where the knowledge is disseminated, tools and methods of disseminating the knowledge and the engagement of students in the process of receiving as well as utilisation of such knowledge (Mpu, & Adu, 2021; Kamga, 2020). ATs come in different forms but for a common goal to augment the functionality and support of students with disabilities (Visagie, et al, 2020; Govindaraj, 2022). Hence, AT forms a critical element in promoting inclusive education, social justice, epistemic access, universal design learning as well as social and medical model of disability (Berghs, Atkin & Thomas, 2019; Frederic, 2020).

This study stands on the principle of social inclusion theory which basically promotes access and equity of students with disabilities. Social inclusion theory is the brainchild of Max Weber who was concerned with the inequalities and social justice in societies especially for the minority groups (Mladenov, 2016;

Trauth, 2017; Rapp& Corral-Granados, 2021). Social inclusion is universal; hence, the United Nations has committed to the Sustainable Development Goals (SDG) of Agenda 2030, which revolves around social inclusion, equal access, equality, full and effective participation themes as well as SDG4 for education (Čavkoska, 2018; Farouk, 2021). In 2016, South Africa promulgated the *Policy Framework for the Realisation of Social Inclusion in Post School Education and Training,* to encourage and promote social inclusion.

Objective

The purpose of this paper is to critically examine how the epistemic access of students using AT was imperilled during Covid-19 lockdown restrictions when online teaching and learning was introduced. The study was organised around the following two objectives:

- To list the types of disabilities and assistive technology used by students with disabilities.
- To investigate how assistive technology facilitated epistemic access for students with disabilities during the Covid-19 lockdown transition to online teaching and learning.

METHOD

Study Setting

The study was carried out in a previously disadvantaged university of technology in KwaZulu- Natal Province in South Africa, where twenty-five students with disabilities using assistive devices for their learning agreed to partake in this study.

Study Design

Qualitative design was deemed appropriate to gather the experiences of epistemic access for the students with disabilities who used various assistive technology during the introduction of online teaching.

Sample Size and Data Collection

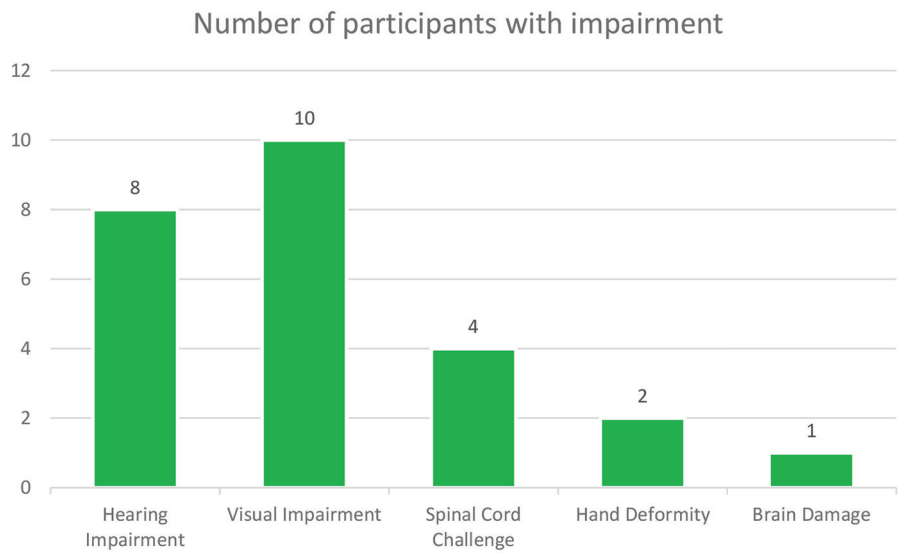
Purposive sampling was used to identify students who use assistive technologies.

A total of twenty-five students who use different assistive technologies consented to be part of the study. The participants were reminded about their rights in terms of participation in this research project. A brief explanation on consent issues, recording of sessions and ethical clearance principles were explained.

Semi-structured interviews and a focus group were conducted to engender a robust and deep explanation of the research objectives (Stahl and King, 2020). Whilst semi-structured interviews were conducted with twelve participants, each interview took about 20 to 30 minutes; focus group meeting took an hour and half with thirteen students. The discussion was guided by open-ended questions and participants probed for clarity where necessary. The data was thereafter thematically analysed.

Figure 1 shows the number of students with disabilities as per their impairment who participated in the study.

Figure 1: Number of participants with different impairment



Ethical Considerations

The permission to conduct the study was awarded (REF: RD1/09/2022) by the university's Research Ethics Committee. For confidentiality purposes pseudonyms are used in this paper. There were no repercussions for students who chose not to participate or who later withdrew from the study.

Data Analysis

Thematic analysis according to Braun and Clarke (2006) was used to determine the study's themes, which included familiarising oneself with the data, coding the data, developing themes, reviewing themes, defining and labelling themes, as well as writing up the story from the data.

RESULTS

The results are presented in Table 1, addressing the first objective of the study. It is critical to identify the types of disabilities that students have and the (AT) and the challenges they experience during online classes.

Table 1. Summary of findings

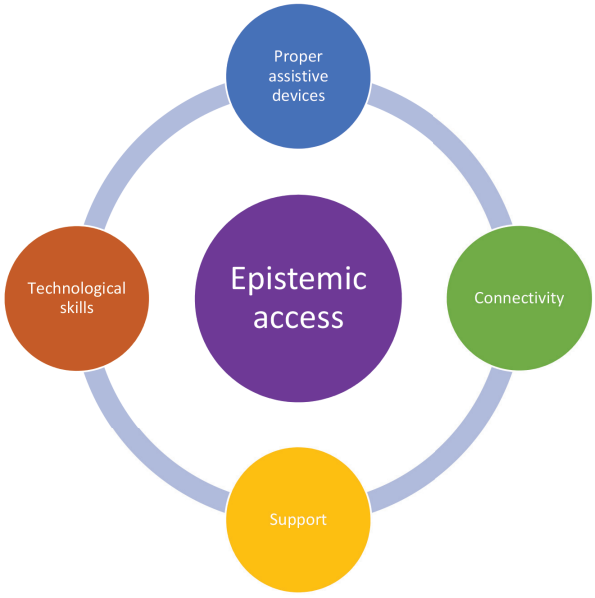
Disability	Assistive Technology	Challenges	Solution and support
Hearing impairment	Smartphone, laptop and hearing device.	Rely on lipreading a challenge- need lecturers to show faces- Difficult to ask them– fear of stigmatisation. Difficult to grasp new concepts if not clearly articulated. Painful, irritable ears if wearing hearing aids for a long time. Need visual material. Need annotated videos. Cell phone space is limited. Limited data package & network. Limited/ no support from the university. Noisy environment, crowed and shared inconvenient spaces.	Self-taught through google. Used trial and error. Sign language in future Pre-reading before class where possible. Friends and family helped

Partial visual impairment Artificial eye-uses glasses. One blind eye and clinical blind	Smartphone, laptop, glasses, and phones with large tactile buttons. Five students have no laptops. Three use magnifiers.	Laptop brightness strained their eyes. Lecturers low level knowledge of software. Large print material not provided. Limited screen size Time concession- not applicable on Blackboard (BB)-Learning. Management System (LMS). Limited data package. Limited support & poor internet connection. Load shedding and insufficient lighting. Did qualify funding for AT. Cell phone not always ideal but it helps. Did not get support from the university.	Relied on recordings. Used goggle talk and screen readers. Friends and family supported. Text-to-speech systems using Optical Character Recognition (OCR).
Spinal cord-hands trembles and paralysis (multiple disorders) Nerve damaged	Glasses, smart phone, laptop and wheelchair.	Wheelchair not fitting in internet café. Difficult to get maintenance for wheelchair (live in remote area). No proper transport. No specific AT for multiple disorder. Limited data package. Limited support & poor internet connection. Small inconvenient study places.	Google talk. Family, Peer helpers and friends helped type assignments.

1-Hand deformity-weak right hand 1-Some fingers missing	Laptop, smart phone and hand support.	Does not have a hand supporter and writes slowly. Time constrains -BB uses or standardised time. Chances of failing are high.	Used to video record himself to learn from it. Peers helped. BB timed- selective in answering questions to save time & started with question comfortable. Ask someone to type his work.
Partially Brain damaged	Besides laptop and phone no other specific device used.	Had a laptop. No challenges.	Has enjoyed helping peers who are struggling.

The second objective of the study focused on whether the assistive technology facilitated the epistemic access of students with disabilities. Four themes as depicted in figure 2 were identified to respond to this objective of the study that is: lack of appropriate assistive technology, technological skills, connectivity issues and support. Central to these themes is the epistemic access of students who use AT.

Figure 2: Epistemic access for students with disabilities



The following themes were identified as projecting the true reflection of enablers and barriers of students with disabilities epistemic access when the online teaching and learning was introduced, lack of appropriate assistive technology, connectivity, support (academic family and friends) and communication, smart phones as well as technological skills.

Lack of appropriate assistive technology

At least three students with visual impairment have no laptops and one of them was assisted by his family. Nosihle feels not having a laptop has negatively impacted on her academic performance:

"It is very difficult to work without your own laptop, I relied on my sisters' laptop. If you have a visual impairment like mine, you need a laptop with special settings. So, this becomes difficult if you share with someone, because it means before you do your work you first need to set it up, that is time consuming".

Victor on the other hand also with vision impairment, has a laptop but is not appropriate set-up for his condition:

"I normally do not have challenges when I am on campus because we do have appropriate devices there. I struggled with small screen especially during assessments."

Sharon on the other hand no laptop and she stated:

"As a first-year student I was still waiting for the procurement of my laptop ...waiting for a university medical doctor to check whether I qualify for assistive technology or not. I only got my device in June. Whilst waiting I was using my smartphone to access online classes…

Connectivity issues

Many students cited poor connectivity, load shedding and cable theft during the introduction of online teaching and learning as one main challenge which did not only affect students with disabilities but the entire communities. However, such disruptions were unbearable for some students because they had no alternatives available to them. Thembi who uses a wheelchair mentioned that:

"*The loss of connectivity and having no lights are normal in our area given that we are in deep rural areas of the Eastern Cape Province. When we were sent home, I thought the academic year would be cancelled. I had mixed emotions because I knew it was going to be difficult for me. My friends told me that they go to town for better connection. That was*

not possible for me because there is no specialised transport in my area, and you need the whole day to go town."

Besides the transport issues for students who use wheelchairs, their wheelchairs do not fit in most internet café's. Pretty was very frustrated when she wanted to go to the nearest internet café' in her vicinity.

"That was the most frustrating moment in life, we were supposed to write a test and I was very prepared and knowing my connectivity, I asked my brother to take me to the nearest café' only to find that my wheelchair could not be driven inside because the internet cafe had staircases and the entrance is narrow. I cried and I tried to call my lecturer but unfortunately, I could not reach him on the phone."

Support

The transition from face to face to online was difficult for some students with disabilities since their support system was left behind. This became unbearable for some and were in the edge of deregistering. Johan, who has a spinal cord disability (hands tremble), desperately needed support as a first year:

"Seeing everything not working out because of many frustrations with connectivity and not getting the necessary support from my lecturers and Peer helpers, I was getting stressed. I wanted to deregister however, my friends and family motivated me to continue. Sometimes that support and motivation is needed."

Students with muscular disorders and hand deformity have slow writing pace, this poses a challenge when they type long essays or writing online assessment as they are timed.

Mbuso mentioned:

"In most cases I relied on my sister to type my essays but the challenge was when she did not understand how I needed it (my essays) to be done but, I would submit it as it is just to meet the deadline."

Technological skills

Most students encountered challenges with technology particularly the first-year students. They were not yet familiar with the learning management system (LMS) of the university which is Blackboard (BB). BB is used by students to access their learning material as well as their assessments. Sbusi experienced challenges with the use of her assistive technology in accessing BB:

"I was fortunate enough that I had received my first laptop … before the lockdown, but the challenge was, I did not know how to use it effectively … as a first-year student… The worse part, no one was around to help me I had to use google and You-tube. That required a lot of data, more than what the university provided us with. I missed most lessons at the beginning of online classes."

Mbongeni has a hearing impairment and relies on lipreading to get to understanding what is being said. Due to fear of stigmatisation he could not ask the lecturer for assistance.

"*My main challenge I encountered during the online classes was lecturers do not always show their faces as they needed to project slides. In this case, I ended up not getting what was being said because I needed to lipread. Recordings … are also not clear. Correct pronunciation of words is important. It is not easy to keep on asking people to repeat themselves because that holds back the entire class*."

Students with hearing impairment have their different challenges, for instance, Futhi with visual impairment had challenges with the screen, the font size and the colour of slides.

"*As a first-year student it becomes difficult to keep on asking your lecturers not to use certain colours when projecting their slides. I asked them at the beginning, but it did not change, they forgot, I think. Also, when they use videos, I only listen to the sound … not see properly."*

Some students with multiple disorders saw challenges as opportunities to learn new ways of doing things although the experience was frustrating. For instance, Nduduzo had to train himself to use speech-to-text function on a laptop.

"*This was both frustrating and exciting because I was learning something new…"*

Whilst on the other hand Isaac shared experienced of exploitation and frustration:

"I pay for my typing services because my hand gets easily tired. The main challenge is when someone types wrong things and try to paraphrase my work. When you ask the person to make corrections, they refuse. They will make you wait, and you don't have time for that. You just submit something that you are not happy with … I am teaching myself speech-to-text."

During assessments on BB students were treated in the same manner; there were no time concession for those students who needed it. Hlelo, who had multi-disorders and Mbuso who had a hand deformity, shared the same sentiments on time concession.

Hlelo mentioned:

"I write very slowly because of my condition; online tests are timed and do not allow for extra-time. ...this hugely affected my academic performance. I was frustrated. I don't think lecturers know how to set BB properly for assessments."

Similarly, Mbuso could not finish his assessment:

"BB gave me challenges, time allocated for the test is the same for all students ... I learnt to start with question that I was most comfortable with so that I could get 50% at least"

However, not all students endured challenges with technological issues and the LMS for instance Zamo stated the following:

"I am a postgraduate student ..., I did not experience any challenges, and there were just minor glitches at the beginning like everyone else I had that anxiety, but I adjusted quickly. … I provided support to many students who were struggling with BB as much as the university provided such support."

Smart phone usage was used as alternative with some students preferring it over the laptop due to its affordability and accessibility. Contrarily, Sizwe who has a hearing impairment has challenges with using a cell phone for a long time. He stated:

"I have a smartphone, which is convenient and affordable, but I cannot rely on it for a long time … wearing earphones strain the only ear that is not impaired. The challenge with the laptop is that when you are not in a quiet space or in a space with poor connectivity; you need to move outside, it is not easy to move with the laptop."

Other barriers

For some students, either their condition was not considered sufficiently disabling to warrant assistive devices, or they had multiple disabilities that required more than one device.

Thulani, a student with a visual impairment did not qualify to receive an assistive device because the university medical practitioner found that his condition was not major. Thulani explains:

> *"I noticed that my vision was deteriorating as online classes progressed. I started to skip classes because of my poor vision. Unfortunately, I could not afford to visit my local optometrist".*

Nozipho explains her ordeal:

> *"My conditions require more than one specific assistive technology, and the unfortunate part is that they are progressive. It means I have to consistently visit a medical practitioner for assessments. When the lockdown took place, I was still waiting for my results from my university practitioner."*

DISCUSSION

The findings revealed the barriers to inclusive education in higher education environment which has a possibility of hampering their epistemic access. These findings also demonstrated the students' resilience, as they persisted despite the challenges.

Lack of appropriate assistive technology

Discrimination, isolation, stigmatisation, lack of epistemological access, inadequate infrastructure, and a lack of ongoing support from their faculties are familiar occurrences (Ndlovu, 2021). However, the Covid19 was characterised with anxiety and stress (Mhlanga & Moloi, 2022;) some students had lost their loved ones and yet expected to cope with new mode of learning.

Being treated as a second-class citizen is also normal for students with disabilities; their needs come as an 'after thought', there are always no proactive plans to accommodate them. Some universities including this university of technology tried to mail learning material which did not materialise anyway since post-offices were closed. Ngubane and Zongozzi (2021) found that even the University of South Africa (UNISA) the giant in distance learning was unable to provide suitable material because for their students with disabilities. They claimed that students struggled to access suitable material hence libraries were closed. Such cases threatened the social justice and inclusive education principles for students with disabilities, it could be confirmed that the students with disabilities were literally left out, and their epistemic access was threatened.

Ndlovu (2021) postulated that getting an assistive device in South African higher education could be a tedious process. Students with multiple disorders are likely not to get an AT that accommodates all the disorders they have.

People with disabilities go through several verification procedures to receive a social grant from the Department of Social Development and assistive devices

from the Department of Health. When students get to the university, they need to visit a Disability Unit in cases where this is available. For students with disabilities to receive disability funding and be considered for assistive device through the National Student Financial Aid Scheme (NSFAS), they may need to be examined and certified by a university medical professional. Such processes are necessary but long and infuriating.

The lack of proper devices might have far-reaching negative impact on students with disabilities which may include but not limited to depriving them right to education, epistemic access and may increase the level of dependency, inequality, frustration, poverty while also lowering their self-esteem and academic performance (Etieyibo & Omiegbe, 2017; Matter, Eide, 2018;). The literature shows that students with disabilities must double up their effort than their counterpart if they want to succeed (Ndlovu, 2021; Themane & Mabasa, 2022). Whilst the study confirms the challenges that the students with disabilities continue to experience in higher question, it also questions the social justice and social inclusion practices of the institution with regards to its inclusive education, the distribution of knowledge and resources.

Technological skills

This theme is heavily loaded with arrays of challenges which included issues of stigmatisation, lack of proper training on BB, using smartphones as learning tools as well as emotional and financial exploitation of students with disabilities. Although literature reveals that both students and academics lack skills of operating the online technology, students believe academics were worse off particularly with material preparation (Magesa & Josua, 2022; Syam & Achamad, 2022; Irvan, Damayanto, Jauhari, & Aqilah, 2021; Wong & Cohen, 2015).

Whilst online learning has benefits; it requires good implementation strategies and effective systems and commitment from all stakeholders (Xhaferi & Xhaferi. 2020; Hongsuchon , Emary, Hariguna, & Qhal, 2022). Having basic computer skills assist in operating assistive technologies as well as accessing learning management system (Ro'fah, Hanjarwati & Suprihatiningrum, 2020) which is Blackboard (BB) in this case. Some first-year students lacked technical skills to access to BB and their assistive devices as they had not received proper training. Amongst other challenges that students with disabilities encountered were poor connectivity as noted earlier above which has a direct impact on their epistemic access (Abed and Shackelford, 2021; Syam &Achmad, 2022).

The findings revealed that each category of disability/ impairment had a share of challenges (refer to table 1.1) with the transition to online learning and access to learning management systems (Catalano et al, 2021; Abed & Shackelford, 2020). These findings have also indicated that lack of technical skills is not limited to students but the academic staff as well (Mpu & Adu (2021). However, that will need to be further investigated. When systems are inaccessible the implementation of inclusive education, the use of AT as well as epistemic access and success cannot be guaranteed for students with disabilities (Mpu & Adu, 2021, Rapp & Corral-Granados, 2021).

Connectivity issues

The long-standing issue of the poor supply of electricity and cable theft which have made load shedding a norm in South Africa also exacerbated the situation for students with disabilities. Most rural areas where a bulk of students come from do not have electricity or its supply is intermittent and this adds an extra burden on students with disabilities as many technological devices use electricity (Adnan & Anwar, 2022; WHO, 2022). Students with disabilities faced numerous challenges as they attempted to adjust to a new mode of learning due to the disabling environment. There are many lessons that can be construed from Pretty's tribulations (refer page 7) who could not write her assessment due to connectivity challenges in rural areas.

The following can be deduced from this experience:

- Poor Connection
- Poor infrastructure in rural areas
- Forced to depend on others (family support is critically important)
- Public facilities not universally design to accommodate diverse needs of their customers
- Unavailability of support (lack of inclusive pedagogy)
- Epistemic access denied (student could not write the test)
- Feelings of frustration and exclusion

Such experiences of social exclusion are dehumanising (Rambe &Mawere, 2011; Florian & Beaton, 2018) and cause unnecessary dependence (WHO, 2022). The

students with disabilities barriers are multiple-faceted and interlinked; the issue of connectivity is linked to transport challenges, academic performance, transport and emotions. According to Duri and Luke (2022), access to public transport is restricted and being in rural areas further exacerbates the condition given the poor road infrastructure.

While the dysconnectivity described above means literary connectivity that mostly affects everyone in the country, students with disabilities have an additional experience of social exclusion. Disability on its own disconnects people from others, especially in spaces that are not universally designed and in institutions where inclusive education is not fully implemented.

Support

Higher education institutions do have structures in place to provide necessary support to students on campus. Such assistance ranges from, support from academics, students counselling and from Peers Helpers (these are students who mainly offer assistance to students with disabilities) to other administrative departments (such as library, IT, transport department and the clinic). However, these kinds of support services were not available during the Covid-19 lockdown. As a result, students felt a vacuum of being isolated from their support systems (Ahmed, 2018). Depending on the severity of the disabilities and assistive technology students may require specialised support otherwise, they may not cope in higher education (Mpu & Adu, 2021; Ndlovu, 2021; Govindarajan, 2022).

Whilst students may need help, they are sometimes cautious of being stigmatised. Florian and Beaton (2018) state that students do not want to be treated differently as this may draw unnecessary attention. Florian & Beaton (2018) and Sanger (2020) thus advocate for inclusive pedagogy, where teachers themselves take responsibility of addressing diverse needs of their students without putting them on the spot.

CONCLUSION and IMPLICATIONS

The forced transition to online teaching and learning was not only difficult for some students; it showed gaps in the implementation of inclusive education in higher education (Synam & Achmad, 2022; Adnan & Anwar, 2020). Online teaching and learning provided another opportunity for higher education institutions to refocus on inclusive education and reconsider how social inclusion, social

justice and inclusive education principles could be used to improve teaching and learning. Higher education institutions are mandated to provide education that is fair, equitable, fair, and non-discriminatory in order to empower people while also boosting the country's socioeconomic state (Rapp & Corral-Granados, 2021). Providing students with disabilities with the necessary assistive devices is necessary to avoid exclusion of this minority group. While laptops and phones may be seen as luxuries by other students, they are essential learning tools for some students with disabilities.

Limitations

The study focused only on the challenges of the students with disabilities mainly those who used assistive technologies during the introduction of online learning. Another limitation of the study is the single focus on a university in South Africa, which, by extension, was limited to only students pursuing higher education.

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School Readiness for Inclusive Education in Tripura, India

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ABSTRACT

Purpose: *There is an increasing emphasis on inclusive education in the Indian educational context. While efforts are being made to bring children from varied marginalised sections into the fold of inclusive classrooms, inclusion of children with disability is of crucial importance too. The present study attempted to find out whether schools in India's North-eastern state of Tripura are ready for inclusive education in its true sense.*

Method: *Sixty schools from eight districts of Tripura were identified through systematic random sampling technique. Data was collected through focus group discussions and interviews with the headmasters/headmistresses and teachers, and analysed along with observations of the physical infrastructure of the schools in the study.*

Results*: The physical infrastructure of the schools was far from ideal. Headmasters/ headmistresses and teachers appeared to lack the required knowledge and skills that would make inclusive education possible. There was also shortage of funds needed to make the necessary adaptations.*

Conclusion: *The schools in Tripura have to build school readiness for inclusive education. Sensitisation of the headmasters/headmistresses about the capabilities and needs of children with disabilities, capacity building of teachers and concerted efforts to make the school infrastructure exemplary in all respects, are required.*

Key words: *inclusive education, India, school readiness*

INTRODUCTION

About 80% of the Indian population lives in rural areas that have no provision for special schools. There are an estimated 8 million children out of school in

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India (Ministry of Human Resource and Development, 2009 statistics), many of whom are marginalised by dimensions such as poverty, gender, disability, and caste. There has been an approximately 16% increase in the number of children with disabilities enrolled in mainstream primary schools over the last five years, but the children with disabilities are most likely to be excluded. "Even amongst those who are enrolled, many children with disabilities are most likely to drop out before completing five years of primary schooling and are least likely to transition to secondary school or higher education," according to Singal (2017). There is a need to do more to ensure that children with disabilities not only access education, but also benefit from quality education.

According to a 2019 report by the United Nations - State of the Education Report for India: Children with Disabilities - 75% of children with disabilities in India do not attend any educational institute in their lifetime. This is despite the existence of a seemingly comprehensive policy on education with provisions to make the Indian education system inclusive. The Rights of Persons with Disabilities Act, 2016 (RPWD), defines inclusive education as a "system of education wherein students with and without disabilities learn together and the system of teaching and learning is suitably adapted to meet the learning needs of different types of students with disabilities". The National Education Policy (NEP) 2020 (Ministry of Human Resource Development, Government of India, n.d.) reaffirms the provisions in the RPWD Act regarding inclusive education. The policy takes on a broader inclusion perspective and aims to achieve learning for all, particularly addressing the exclusion of socio-economically disadvantaged groups. The policy emphasises the importance of inclusion of children with disabilities from early childhood education to higher education, with the provision of assistive devices and teaching and learning materials.

Samagra Shiksha Abhiyan is India's flagship education programme implemented throughout the country through a single State Implementation Society at the state/union territory level. It subsumes three previous schemes: Sarva Shiksha Abhiyan (SSA), Rashtriya Madhyamik Shiksha Abhiyan and Teacher Education (Ministry of Education, Government of of India, n.d.). These schemes are the primary strategies of the country to move towards the achievement of Sustainable Development Goal 4 (SDG 4) targets (Ministry of Education, Government of India, n.d.). Inclusive education is among the major interventions identified under Samagra Shiksha Abhiyan.

Are our schools ready for inclusion? What are the needs and challenges for

achieving the goal of inclusive education? How will an inclusive environment meet the needs of children with disabilities? How can quality education be effectively and efficiently delivered for all children? Inclusive schools have to address the needs of all children in every community and the central and state governments have to manage inclusive classrooms. How does one build a common understanding and a renewed commitment towards reinforcing inclusion in education among education policymakers, education practitioners, civil society organisations, NGOs, a mechanism to remind states of their obligation to all people?

Keeping in view these questions, a study was undertaken by the researchers for CBM India Trust to analyse the current status of the inclusive education system in the state of Tripura by converging data from three sources, viz., physical infrastructure of the school, the views of headmasters/headmistresses of the schools towards inclusive education, and the regular teachers' readiness for inclusive education.

Tripura is a state in the north-eastern region of India, with a population of nearly 42.23 lakhs and with a literacy rate of 87.22 % (Population census, n.d.). The state of Tripura imparts free and compulsory education to children between 6 and 14 years of age (Government of Tripura, n.d.) as per the Right of Children to Free and Compulsory Education Act, 2009, passed by the Government of India (Government of India, n.d.). The school education system in Tripura has four stages – primary stage (classes I to V), middle stage (classes VI to VIII), secondary stage (classes IX and X) and higher secondary stage (classes XI and XII). The state has schools that are affiliated to one of the three boards - the Tripura Board of Secondary Education, or the Central Board of Secondary Education or the Council for the Indian School Certificate Examination. The schools are either run by the government or by private bodies. The schools in Tripura generally have Bengali and English as the medium of instruction, though Kokborok and other dialects are also used for instruction (Majumder, 2020). In the context of education of children with disabilities, the Rights of People with Disabilities Act (2016) mandates that every child with disability receives free education in an appropriate environment in an inclusive school or special school as per his/her choice, and the state of Tripura follows the diktat.

Objective

This study attempts to answer three research questions:

(1) In what ways is the school accessible for children with disabilities?

(2) According to the headmasters/headmistresses, in what ways is their school ready for inclusive education?

(3) What are the perspectives of the regular teachers towards inclusive education for children with disabilities?

METHOD

Study Design

The study used a mixed-methods approach. Quantitative and qualitative data were collected and analysed to help interpret the findings.

Study Setting

The study particularly focused on 400 government schools in the state of Tripura in Northeast India, where the Saksham Tripura Project is being implemented. This is a state- funded project managed by CBM India Trust. Four partnering agencies have collaborated and employed 100 special educators and 6 mentors to support children with disabilities studying in the 400 government schools.

Study Sample

Permission to collect data from the schools, the headmasters/headmistresses (HMs), and the regular teachers was sought from the Director, Directorate of Secondary Education, Government of Tripura, India. Once the permissions were obtained, the process of sample selection commenced. Systematic random sampling technique was employed to identify 15% of the 400 schools for inclusion in the study and thus 60 schools from eight districts of Tripura were a part of the sample. The HMs of the selected 60 schools were included in the study. In some schools, teachers-in-charge were working as HMs, thus were part of the sample. Eighty regular teachers who had students with disability in their class comprised the sample.

Study Tools

The study included the use of three different tools for data collection from three sources, viz., physical infrastructure, HMs, and regular teachers.

Rating scale to assess physical accessibility of schools: A 3-point rating scale was constructed to evaluate the school readiness vis-á-vis its physical accessibility. The constructed tool was drawn from 'Indicators for Physical Accessibility', developed as part of the Index for inclusive schools by National Council of Educational Research and Training (n.d.). The physical accessibility and infrastructure of the school was rated as having 'exemplary level of work', 'partial work', or 'needs improvement'.

Questions for focus group discussion (FGD) and interview schedule for HMs: The tool for FGD (and the interview schedule) comprised questions for eliciting data in four areas – planning for inclusion, inclusive culture, building capacities, inclusive practice, and feasibility of inclusive education. In addition, there were introductory and concluding questions.

Rating scale for regular teachers: To know the perceptions of regular teachers regarding readiness for inclusive education, a 4-point Likert-type rating scale was employed.

Data Collection

The process of data collection started with development of tools and content validating them. The tools that were developed in English language were further translated into Bengali language to facilitate data collection. The Bengali tools were then back translated to confirm that they did not lose their meaning.

The field-workers comprising of six mentors and 60 special educators of the Saksham Tripura Project were introduced to their roles in data collection, familiarised with the tools, and trained in the administration of the same. Furthermore, a three-hour online training in data collection was also conducted for the field-workers using the Google Meet platform. The field-workers visited the schools that were identified for data collection and gathered data by recording the observations (for physical accessibility) and responses of the regular teachers, in Google Forms. The FGDs and interviews of the HMs were conducted by the researchers initially; later, the mentors interviewed the HMs. The qualitative data from the FGDs and interviews was transcribed and then subjected to qualitative analysis.

RESULTS

The study aimed at understanding whether the schools in Tripura were ready for inclusive education. The data obtained from the observation of physical

infrastructure of the schools, the perspectives of the HMs and the regular teachers was analysed. The results are presented below.

Physical Infrastructure of Schools

The accessibility of school infrastructure is the first and foremost parameter under consideration for evaluating the success of inclusive education. For the study, observations were made about the infrastructure of 54 out of the 60 identified schools, and were noted under three categories: infrastructure needing improvement, having partial work, and having exemplary work. For the tool, the item was marked under 'needs improvement' if a lot of work needed to be initiated; or marked as 'partial work' if there was development but the physical infrastructure could be further improved; or 'exemplary level of work' if nothing more needed to be improved and the infrastructure was exemplary. Data obtained from the rating scales and observations were considered while making inferences about the infrastructural accessibility.

Table 1: Percentage of Responses about Physical Infrastructure and Accessibility of Schools in Tripura

Sr. No.	Item	Needs improvement (%)	Partial work (%)	Exemplary level of work (%)
	The school…			
1.	Is safe and fully accessible to all children including children with special needs and has appropriate electrical and water supply	29.63	33.33	37.04
2.	Has doors with handles fixed at adequate levels and not too high	12.96	22.22	64.81
3.	Has toilets with proper doors, taking care of privacy, especially for girls and children who need help in toileting	25.93	33.33	40.74
4.	Has separate toilets for boys and girls, built at a distance from each other and an adapted toilet for children with special needs	31.48	18.52	50.00
5.	Has toilets with constant running water and sanitation facilities	29.63	27.78	42.59
6.	Has ramps and railings for children who may have difficulty in moving	29.63	40.74	29.63
7.	Has a library equipped with good storage space and books in accessible formats and ICT	61.11	25.93	12.96

8.	Has a resource room or separate room for additional teaching if required	59.26	22.22	18.52
9.	Has a playground with adequate equipment for outdoor games and physical activities for all, including children with special needs	18.52	33.33	48.19
10.	Has a provision for indoor games such as carrom, chess, etc.	27.78	35.18	37.04
	The classroom			
11.	Setting allows children to move freely or sit with a friend when required	7.41	44.44	48.15
12.	Is of adequate size for proper seating arrangements and group work	14.81	50.00	31.48
13.	Blackboards are fixed at a proper height to be accessible to all children, including those who want to come near to read it	9.26	29.63	61.11
14.	Has adequate light and extra light when necessary, and proper colour contrast	31.48	35.19	33.33
15.	Has minimum noise levels for avoiding distraction	29.63	31.48	38.89
16.	Is equipped with adequate space for keeping books in Braille/ Large Print/ Print and assistive devices that help children with special needs to perform various tasks	79.63	14.81	5.56
17.	Has provision for ground floor classrooms for children with mobility needs, and flexible and adjustable furniture	38.89	40.74	20.37

Table 1 shows that 37.04% of the schools were fully accessible with appropriate electrical and water supply. The other 62.96% lacked one or the other aspect. A large percentage (64.81%) of schools had door handles at the height of around two to two- and- a- half feet that could be accessed by children. The toilets that were constructed offered complete privacy to girl students and students with disability in 40.74% of the schools. Separate toilets were available for boys, girls, and children with disabilities in 50% of the schools. Nonetheless, the toilets were found to be incompatible with the specifications for accessible toilets as required for children with disabilities. Ramps for access to toilets were unavailable in many cases. Western commodes, handrails, hand water faucets, and large space to manoeuvre the wheelchair were missing in the toilets for children with disabilities. The toilets required continuous water supply in 57.41% of schools. There was a need for more and better ramps and railings in 40.74% of schools, with just 29.63% having 'exemplary level of work' in this respect. Though ample physical

space was available for outdoor activities and games in nearly half the schools (48.19%), the provision for indoor games was seen in only 37.04% of schools. The physical infrastructure for library with accessible material needed improvement in 61.11% of schools and separate resource rooms for special educators to work with children with disabilities were required in 59.26% of schools.

With regard to the classroom infrastructure, the classrooms were found to have sufficient space for movement of students. In 48.15% of cases, the rooms were spacious enough to permit children with disabilities who were wheelchair-users to navigate within the class. In 61.11% of the classrooms, the blackboards were observed to be at an appropriate height for all children to write on. Many school buildings were single ground-floor buildings, yet only 20.37% of the schools had a provision for arranging classrooms on the ground floor for children with mobility needs. Additionally, the furniture in the classrooms was not flexible and adjustable, reducing the movement of children with locomotor disability. Barely 20.37% of schools were able to provide for this flexibility in classroom arrangement. Close to 80% (79.63%) of the classrooms lacked the space to store assistive technology and resource material required by children with disabilities, which would help them access educational opportunities and engage in productive learning. The classrooms in 38.89% of schools were near noise-free. However, with respect to appropriate lighting and contrast, there was an approximately equal percentage of schools needing improvement (31.48%), having partial work (35.19%), and with exemplary lighting and contrast (33.33%).

Perspectives of Headmasters and Headmistresses (HMs)

The responses of 59 headmasters/headmistresses were collected and analysed. Initially, three different focus group discussions were carried out with 23 HMs, placing eight HMs in group 1, eight in group 2, and seven in group 3. It was observed that some HMs were hesitant about sharing their views on practices and challenges in implementing inclusive education during the FGDs. Secondly, due to the geographical distance, it was rather difficult to coordinate with and gather all the HMs to meet at a mutually convenient time for conducting the focus group discussion. Hence, the remaining 36 HMs were interviewed on a one-to-one basis. During the interviews, the HMs were more willing to speak and share information, and also respond to the prompts and probes.

The questions addressed criteria, viz., planning for inclusion, building capacities, inclusive culture, inclusive practices, and inclusion feasibility to determine how

ready the HMs were to bring in a change in the education system at their level, to make schools ready for inclusive education.

When asked whether they thought that their school was ready for inclusion, 80 % of the HMs responded in the affirmative. However, the in-depth interviews had a different story to tell. After reviewing the interview responses, what emerged was clubbed under 'their perception', 'the reality' and 'the challenges faced'.

Planning for Inclusion

Thirty-five out of 42 HMs were not doing any specific planning to make their schools inclusive. One major perception held by the HMs that emerged from the FGDs and interviews was that not much planning was required for inclusion of children with locomotor disabilities. Talking about the challenges in planning for inclusion, the lack of parental involvement at the planning stage of their child's education came across strongly. They also expressed the view that financial resources were needed to plan for inclusion so that inclusive education could become a reality. Lack of funds was one of the major challenges that most of them were facing. They indicated that the state government provided transport allowance, escort allowance and money to purchase teaching- learning material for children with disabilities. Nonetheless, the reality was that this allowance was provided on a rotational basis, so every child with disabilities did not get the allowance every year. The schools did not have enough finance to construct a resource room for children with disabilities. Thus, many HMs regretted that the state government funding was inadequate.

Building Capacities

All HMs and teachers should understand why inclusive education needs to be practised and how all children, including those with disabilities, must be taught without pulling them out of their classroom. When asked if they would want to undergo any professional development training with a focus on learning about inclusive education, the response from most HMs was not very encouraging. More than 75% of them were not interested in any training to understand the need for inclusive education and how it could be implemented. Having enquired whether the teachers in their schools have received adequate training in inclusive pedagogies, 20 HMs responded in the negative; those who said that the teachers had received training clarified that the training was organised and conducted by the government, and it was of short duration of five days.

Inclusive Culture

The perception of the HMs was that every child had a right to quality education, but the reality was far from it. There was no policy document on inclusive education created by any HM. They were not aware of the milestone laws and policies of the Indian government which focus on rights of children with disabilities pertaining to their education and rehabilitation. Focus group discussions revealed that there was little empathy towards children with disabilities. There were no guidelines for the HMs on implementing inclusive education. They were aware that as per the RTE Act they could not deny admission to any child with disability, but there was little planning done to make it equal and equitable education. The common perception of the HMs was that children who have mild disabilities and no cognitive deficits were capable of studying in mainstream schools. Those with milder disabilities were accommodated but no adaptations were made in the curriculum or in sports, etc., that would allow all children with disabilities to develop a sense of belonging in the school.

Despite the lack of positive attitude of the HMs, special teachers were appointed in the schools under the Saksham Tripura Project, and they were trying hard to make a difference in the education of children with disabilities. The onus was put on the special teachers most of the time and thus a holistic approach in educating children with disabilities was missing.

Inclusive Practices

Clear, open, honest, and timely communication among school leaders and staff, staff and students, staff and families, and between students, is vital to an inclusive and positive school climate. Seventy-one percent of HMs believed that there should be adaptations made in curriculum and curriculum transaction for children with disabilities; and as indicated by them the adaptation was done in the process of teaching, the time allocated to the children with disabilities, the content, and the teaching-learning material. In reality, these adaptations in the curriculum were done by the special teachers when they taught the children with disabilities in resource rooms; but the same teaching practices were not followed by the regular teachers.

Inclusion Feasibility

A child with disability is like any other child. When this becomes a common perception, inclusive education will become a reality. All the HMs (100%) agreed

that inclusive education could be feasible but only if there was awareness and involvement of all stakeholders, and if adequate funds were available.

Regular Teachers' Perceptions

Data collected from the 79 regular teachers on a 4-point rating scale and anecdotal recording of the oral-verbal interactions with them provided some insights into their perceptions about inclusive education. Table 2 presents the percentage of responses obtained from the regular teachers on the 4-point rating scale, ranging from 'strongly agree' (SA), 'agree' (A), 'disagree' (D), and 'strongly disagree' (SD)

The percentage of regular teachers indicating that they had no training in teaching children with disabilities was 64.55%, as compared to 35.45% indicating that they had the necessary knowledge and skills. A majority of teachers (87.34%) felt that they needed more training to teach children with disabilities appropriately.

Regarding awareness of inclusive pedagogies, more than half (53.16%) of the teachers responded in the affirmative. However, on asking them to name such methods, the teachers could neither list inclusive pedagogies like differentiated instruction or universal design for learning, nor describe any pedagogy that reaches all students in class.

Table 2: Percentage of Responses by Regular Teachers

Sr. No.	Item	SA (%)	A (%)	D (%)	SD (%)
1	My educational background has prepared me to effectively teach children with disabilities	2.53	32.91	35.44	29.11
2	I am aware of different pedagogical approaches to be followed in regular classroom / inclusive classroom	7.59	45.57	32.91	13.92
3	Implementation of inclusive education is possible when general education teachers and special education teachers work together	46.84	43.04	6.33	3.80
4	Methods and materials used to teach children with disabilities will also benefit all other students in the regular classroom	45.57	45.57	5.06	3.80
5	Both regular education teachers and special education teachers should teach children with disabilities	49.37	45.57	2.53	2.53
6	I think I will need much more time to teach children with disabilities in my class	30.38	55.70	12.66	1.27

7	I need more training in order to teach children with disabilities appropriately	41.77	45.57	8.86	3.80
8	I will not be able to complete the syllabus if I am expected to spend time giving individual attention to children with disabilities	31.65	45.57	20.25	2.53
9	Isolation in a special class has a negative effect on the social and emotional development of children with disabilities	32.91	45.57	17.72	3.80
10	I adapt the curriculum for children with disabilities in my class	11.39	39.24	39.24	10.13
11	I discuss my concerns with the special teacher about the children with disabilities in my class	24.05	50.63	20.25	5.06
12	When teaching children with disabilities, I use different teaching methods (e.g., use of concrete aids, multisensory teaching)	8.86	51.90	25.32	13.92
13	It is challenging to manage the behavioural issues of children with disabilities in class (e.g., aggression, temper tantrum, etc.)	12.66	50.63	25.32	11.39
14	All children with disabilities in my class are adequately engaged in class	20.25	59.49	18.99	1.27
15	Inclusion of children with disabilities requires significant change in regular classroom procedures (e.g., changing seating arrangement, changing time-table)	35.44	51.90	8.86	3.80
16	I design such classroom activities that all children including children with disabilities can participate in them	21.52	55.70	20.25	2.53
17	I help children with disabilities to use assistive technology in my class	3.80	41.77	41.77	12.66
18	I prefer to appoint the first ranking student as the class monitor always	6.33	18.99	36.71	37.97
19	Most children with disabilities do not make an adequate attempt to complete their classwork and homework	6.33	35.44	45.57	12.66
20	My school head ensures that children with disabilities can avail of the provisions available to them	41.77	46.84	7.59	3.80
21	Regular education teachers should not be responsible for teaching children with disabilities	7.59	15.19	43.04	34.18
22	The students in my class help children with disabilities in some learning tasks when instructed by me	30.38	62.03	7.59	0.00

23	The inclusion of children with disabilities can be beneficial for students without disability	30.38	53.16	13.92	2.53
24	My school head is supportive of my efforts while working with children with disabilities	41.77	51.90	5.06	1.27
25	I prepare different teaching-learning material depending on the learning needs of children with disabilities	10.13	36.71	40.51	12.66
26	Children with disabilities should be given every opportunity to function in the regular classroom setting wherever possible	45.57	49.37	3.80	1.27
27	Large class size prevents me from giving individual attention to children with disabilities	20.25	43.04	27.85	8.86
28	Children with disabilities and those without disability should learn together cooperatively	35.44	59.49	1.27	3.80
29	The needs of children with disabilities can best be met by special educators in separate classes	30.38	49.37	16.46	3.80
30	Children with disabilities should be allowed to participate in social events held in school	53.16	46.84	0.00	0.00

In principle, shared responsibility and collaboration (item 3 – 89.88%, and item 5 -94.94%) between regular teachers and special educators for education of children with disabilities was acknowledged. However, in practice there was little collaboration between the regular teachers and the special educators as communicated by them. A quarter of the regular teachers (25.31%) had not discussed with the special educators about the children with disabilities, their learning needs, and how to teach them. As seen from Table 2, 77.22% agreed that regular teachers were responsible for teaching children with disabilities. Yet, 79.75% of them felt that children with disabilities could learn best with special educators in separate classes.

The regular teachers shared the concerns and challenges they faced in the process of teaching children with disabilities in the inclusive classrooms. Implementation of inclusive education had its set of perceived challenges like requiring more time to teach children with disabilities (86.08%), syllabus completion concerns if children with disabilities are attended to (77.22%), management of behaviours of children with disabilities (63.29%), and difficulty paying attention to children with disabilities due to large class size (63.29%). Responses of the regular teachers (87.34%) regarding logistical challenges, like needing to change the timetable / infrastructure to accommodate the children with disabilities, was noted.

Although there was recognition amongst the regular teachers that children with disabilities should be included in the classroom, inclusion in its true spirit was probably not prevalent. When asked whether a child with disabilities would be appointed as a monitor of the class, resistance was observed on the part of the regular teachers. With respect to what the regular teachers do in their classrooms to teach children with disabilities, 50% said that they adapted the curriculum, 60.76% agreed that they used different teaching methods to teach children with disabilities, and nearly 72% indicated that they designed classroom activities so that children with disabilities could be engaged in their classrooms. However, they were able to provide little clarification and illustration for what they claimed they did. According to 83.54% of the regular teachers, inclusive education was beneficial for children without disabilities. Nearly 91.14% responded that the material that is used to teach children with disabilities would also benefit other children in the classroom.

DISCUSSION

The study attempted to explore whether the schools in the state of Tripura were ready for inclusive education. To determine this, a study of the physical infrastructure of the schools was undertaken. Additionally, the views of the headmasters/ headmistresses and the regular teachers were elicited and analysed.

The study identified that the schools' physical infrastructure was far from ideal. Though the schools and classrooms were spacious, the built environment posed barriers to physical access and movement for children with locomotor disabilities. The schools that were surveyed showed that they lacked accessibility; many school buildings did not have well-constructed approach roads. The want of ramps, ramps with appropriate gradient, lifts, tactile paths and signage, was reducing school accessibility for children with physical and locomotor disabilities. The schools needed adapted and accessible toilet facilities along with drinking water facility. The physical infrastructure of a school impacts the student learning (Barrett et al, 2019). Barrett et al (2019) found that when the school premises are perceived as safe, clean, and accessible, teachers and students are more likely to attend the school. In the context of the current study, improvement in infrastructure by incorporating tactile flooring, adequate lighting, and paint schemes to help children with visual impairment; lifts, and ramps to help children with physical impairment; carpeting of classrooms to help children with hearing impairment; accessible restrooms with adequate water supply, and good roads to access

school, would facilitate access to education for all. Resource rooms should be an integral part of any inclusive school as it may not be possible to meet all the needs of a special child in the mainstream class (Establishment of Resource Rooms for Children with Special Needs, n.d.). It is alright if the child with disabilities is pulled out of the class to be in the resource room where the special teacher provides him/her additional support through adapted curriculum, variety of teaching-learning materials, assistive devices, and individual attention for some part of the day. As children with disabilities receive more services in the resource room, they may gradually be able to self-regulate their learning and the time spent in the resource room may reduce.

The attitudes towards children with disabilities have a crucial role in the effective implementation of the school inclusion process (Ginevra et al. 2021). The effort that will be put into making education accessible to all students is seen to be an extension of the attitudes of the two key stakeholders in this study – the headmasters/ headmistresses and the regular teachers. The attitude of apathy towards children with disabilities is making the inclusive education efforts in Tripura an uphill task. HMs and teachers appeared to lack the required knowledge and skills that would make inclusive education possible. Thus, there is a need for continuous professional development of the HMs and the teachers to achieve momentum to the inclusive education efforts, as it is widely acknowledged today that teachers need to inculcate the right attitudes, knowledge, and skills to teach all students in inclusive setups (Global Education Monitoring Report Team and International Task Force on Teachers for Education 2030, 2020).

The HMs lacked knowledge about the various Acts for empowering children with disabilities and the legal provisions pertaining to education of children with disabilities. They not only need to know the rules, regulations, and provisions for children with disabilities, but also how to help children with disabilities avail of the benefits. Apart from the answer to 'why' inclusive education, to answer 'how' is very important, considering that the teacher attitude towards inclusive education is determined by the practicalities of implementing inclusive education (Warnock & Norwich, 2010).The HMs and teachers will feel more confident and competent about inclusive education once they receive training in the same (Subban & Sharma, 2006).

The study found that the ignorance about inclusive education pedagogy was negatively affecting the implementation of inclusive educational practices. The existing teacher training programmes do not prepare the regular teachers in

addressing educational challenges of a class with diverse learners including those with disabilities. While regular teachers were only subject pedagogues, they need training in inclusive pedagogies like curriculum adaptation, universal design for learning, cooperative learning, peer tutoring, differentiated instruction, etc., which would equip them to be effective teachers in mixed ability classrooms and create sustainable inclusive classrooms (Schuelka, 2018).

Teachers are the most important human resources required for developing young children with and without disability to their full potential. In many of the schools from which data was collected, it came to light that a large number of teacher posts were vacant for a long period of time. In effect, the existing teachers were taking on additional responsibilities in the school. The teacher-student ratio was thus skewed; this in turn was affecting the teaching-learning process adversely (Limaye, 2016). The regular teachers indicated that the average student strength in class was 30 students. With a large student-teacher ratio, it was highly challenging for them to pay attention to the needs of children with disabilities studying in their class, proving to be a deterrent to teacher efforts towards inclusive education (Froese-Germain et al. 2012).

CONCLUSION

The schools in the Indian state of Tripura have to work on school readiness for inclusive education. Access to educational institutions and the learning experience is a prerequisite for the success of inclusive education. The schools in Tripura ought to make concerted efforts to make their infrastructure exemplary in all respects. The sensitisation of the headmasters/headmistresses about disabilities, the capabilities of children with disabilities, the needs of children with disabilities, and their capacity building are much needed to drive the efforts towards inclusive education. A large number of children with disabilities are just as capable as their peers without disability, but experience barriers due to lack of inclusive practices in schools. Equipping the regular teachers with the knowledge and skills about inclusive education pedagogies is a must for children with disabilities to experience inclusion and learn. Equitable learning opportunities have to be provided to all children with disabilities without underestimating their potential.

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Fostering Social Communication for Children with Autism through Augmented Reality Toys

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ABSTRACT

Purpose: *The fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) classified autism spectrum disorder (ASD) as a neurodevelopmental disorder characterised by difficulties with socialisation and communication, and with restricted interests and repetitive behaviour. The wide range of symptom types and severity of the disorder in children with ASD can range from the need for support to the need for substantial support, and sometimes even very substantial support. This paper examines an augmented reality toy application, AR Toys, which supports social communication of children with ASD, and reports on how the application was used in school classrooms.*

Method: *AR Toys was evaluated by seven children in an Autism Centre in Melaka, Malaysia. The analysis focused entirely on observation of the interactions between children and teachers at the school.*

Results: *It was found that AR Toys were able to: (1) motivate children with ASD on adaptive language; (2) model expressive language to identify a child's emotion; and (3) promote pretend play on learning emotion in classroom activities. This gives children with ASD more opportunities to communicate among peers and interact with teachers at school.*

Conclusion: *Human Computer Interaction (HCI) research using AR technologies shows positive feedback in supporting children with ASD in recognising emotions that facilitate their social communication development, leading to better understanding, communication and engagement between teachers and children.*

Key words: *augmented reality, Autism Spectrum Disorder, social communication, AR Toys*

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INTRODUCTION

Toys are a child's "best friend". Children can give free rein to their imagination while playing with toys. A previous study (Bremner et al, 2019) found that through pretend play, children are able to communicate and express their emotions in a variety of ways, including through facial expression, body language, and expressive language. However, children with ASD usually have defects in playfulness (Zarei et al, 2022) as social communication is a dynamic process that involves the sharing of information in an interpersonal setting (Wieckowski & White, 2017). Thus, virtual toys are able to support children's play by enabling their imaginative play to facilitate them in playful activities with others, regulate their emotional arousal, and possess the necessary skills to initiate interactions and communication with others (Mispa et al, 2016). Furthermore, augmented reality (AR) technology seamlessly merges the real and virtual by overlaying computer-generated virtual graphics on a live direct or indirect real-world environment in real time (Lee, 2012). The technology allows users to interact with the digital content and the actual world. Augmented reality toys enable users to interact with AR content and start their pretend play with the toys. With the assistance of media content such as 3D animation, soundtracks and graphics, children with ASD can experience and recognise facial expressions and body language.

Research in human-computer interaction (HCI) has investigated approaches to support the development of children with ASD. These approaches have often focused on technology that tends to be relatively complex and expensive, such as robotics and virtual reality (Abdullah & Brereton, 2015). In a similar vein, avatar technology to support the development of children with ASD has also received significant attention (Ying et al, 2016). In fact, the personalised avatar integrated into technology has also demonstrated its ability to increase learning content engagement and facilitate the educational process for children with ASD (Ying et al, 2016). At the same time, children can convey their feelings during playtime with the AR toys. This study specifically reports how AR can assist children with ASD in supporting their social communication and interaction by expressing their emotions correctly.

Related Work

Immersive technology such as virtual reality and augmented reality are widely used to support children with autism spectrum disorder. Lahiri et al (2011) and Bellani et al (2011) demonstrated that virtual reality (VR) technologies are a

promising intervention to support individuals with ASD. Both studies identified the potential of VR technology to provide better support in socialisation for individuals with ASD. Lahiri et al (2011) demonstrated that VR technology has the potential to promote social interaction among adolescents with autism. Bellani et al (2011) supported that the use of VR technology enhances the social behaviour of those children. In a similar vein, Mora-Guiard et al (2016) showed that VR technology is a useful tool to foster social interaction and collaboration behaviours for children with ASD. More recently, Bozgeyikli et al (2016) found that immersive virtual environments provided an effective alternative training tool for improving vocational skills (e.g., cleaning, loading the back of a truck, money management, shelving, environmental awareness, and social skills) for individuals with ASD.

Another technology used to support children with ASD in their social interactions is augmented reality (AR) technology. Escobedo et al (2012) stated that AR technology has the potential to integrate children with ASD and typically developing children, enabling them to practise social interaction in their daily lives. Mobile and AR technologies offer significant potential use of newly acquired social interaction skills.

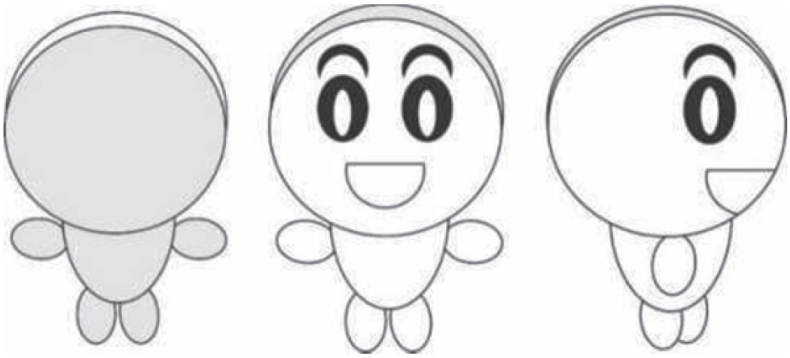
A limitation of using VR technology in helping children with autism spectrum disorder lies in managing the use of individualised interventions, because children with ASD have deficits in viewing patterns during social activities, according to Lahiri et al (2011). Similarly, Parés et al (2005) confirmed that individuals with ASD require technological intervention that is personalised to their needs and abilities for the intervention to be successful. Lahiri et al (2011) stated that another challenge for children with low-functioning ASD is that technology with the capacity for a dynamic supporting role is required to allow the highest interactivity levels between children and the virtual avatars in VR technology. The study by Bellani et al (2011) found that VR technology was able to help caretakers and educators to enhance social behaviours among children with ASD. They pointed out that the new skills that the children acquire in a VR environment need to be transferred to their daily lives to help them maintain their social skills in the real world. Similarly, Boyd et al (2017) argued that the social skills developed in a virtual world among children with ASD need to be maintained in the physical world.

Augmented Reality Application (AR Toys Application)

The AR Toys application was co-designed with the study's research team and special education teachers who teach children with autism. The research team conducted a contextual interview and discussion with teachers in the National Autism Society of Malaysia (NASOM Melaka). The research inquiry focused on understanding how to support social communication among children with ASD in the classroom, using five basic emotions (happy, sad, angry, scared, and disgust) which have always been taught in the classroom. The contextual interview and discussion with the special education teachers led to the designing process of the AR Toys application. In order to fulfil the requirement in supporting children's development in social communication, the details of the AR Toys application's design concept development was identified and discussed with the special education teachers at NASOM.

A low fidelity prototype of the AR Toys character design was presented to the special education teachers for approval on the AR application content, as depicted in Figure 1.

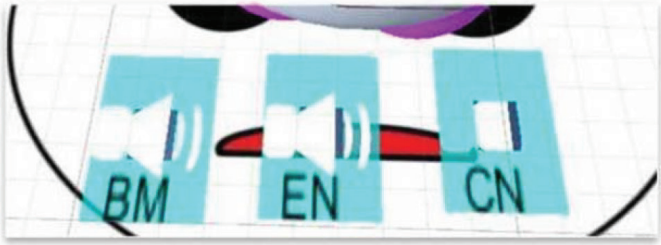
Figure 1: Low Fidelity Prototype of AR Toys Design Concept



After the special education teachers' approval, the research team developed a three-dimensional (3D) AR Toys application (see Figure 2) with three languages, namely Malay (BM), English (EN), and Chinese (CN), to cater to the social communication development for children with ASD by learning five basic emotions in the classroom (see Figure 3).

Figure 2: 3D AR Toys Application represents Five Basic Emotions (happy, sad, angry, scared and disgust)

Figure 3: AR Toys Application available in Three Languages (Malay, English, and Chinese)



Objective

This research study aims to examine an augmented reality toy application, AR Toys in supporting social communication of children with ASD at school.

The study explores augmented reality (AR) technology as an assistive tool to present computer-based elements which are specific for children with ASD. The study focuses on the design of AR toys in keeping with the style of Malaysian toys to ensure their attractiveness and familiarity among children in Malaysia.

METHOD

Study Sample

A total of seven participants, consisting of six males and one female, were involved in the trial. The children were of different ages and had differing severity of ASD. They were selected from the centre by the special education teachers. They were tested mainly on their level of understanding towards the AR Toys application

and capability of using the application. The children's interactions and reactions were observed throughout the trial. The researchers were assisted by two special education teachers.

Data Collection and Analysis

The testing was conducted in a classroom with this small group of children with ASD. During the trial, the children with ASD used the AR Toys application to learn the five basic emotions to facilitate their social communication. The participants' interactions with the application were observed and recorded. The data was collected and analysed using manual coding. Then, an interview was conducted with the special education teachers to confirm and refine the identified themes from the findings.

The thematic analysis of the AR Toys application used in the classroom identified three additional themes in relation to the teachers and children's interactions. The emerging themes from the analysis are discussed in the Results section.

Ethics Approval

The Human Research Ethics Committee of Universiti Teknikal Malaysia Melaka approved the study protocol. Prior to the trial, written consent to involve each participant was obtained from the coordinator of the National Autism Society of Malaysia (NASOM Melaka).

RESULTS and DISCUSSION

The observations in the classroom revealed that the participants spent a significant amount of time playing with the AR Toys application, especially with the happy emotion on which they spent 38% of the time. Additionally, during their interactions most participants preferred to use the AR Toys application in the Malay (BM) language as compared to English (EN) or Chinese (CN).

Theme 1: AR Toys Application can Motivate Children with ASD on Adaptive Language

This study found that the AR Toys application is able to motivate children with ASD on adaptive language. The AR Toys application is available in three languages, namely Malay (BM), English (EN) and Chinese (CN). The observation in the classroom found that most of the participants were able to complete the task

using the AR Toys application to learn five basic emotions including expression and reaction. Two participants tried to imitate the language of the voiceover. The teacher mentioned in the interview that the application is useful for these children at school, particularly to foster adaptive language.

> *"…using the native language in the AR Toys application, similar with what the NASOM centre (BM, EN) teaches in the classroom, is a good way to assist children to practise conveying language and communication skills"* (Teacher's comment).

Based on the classroom observation, this study found that a majority of the participants selected BM as their medium of language preference. CN attained the lowest frequency because it is not the native language in the centre and in the children's families. Figure 4 shows a participant trying to imitate the application.

Figure 4: Participant imitating the Application

One of the participants was yelling while interacting with the AR Toys application and was unable to cooperate throughout the whole trial session. Thus, there is a limitation when designing and developing an application for autism, especially in the audio selection during the design process (see Figure 5). The teacher also explained this during the interview session.

> *"Although languages with audio voiceover are good, some of participants are sensitive in auditory sense, so they are unable to interact with the application because it will affect their auditory system"* (Teacher's explanation).

Figure 5: A Participant covering his ears when playing the AR Toys Application

This finding is supported by the study of Bellini (2009), which demonstrated that using adaptive language is suitable for children with ASD to be able to recognise and express their emotions correctly in social communication and interaction skills. In another study, a technology-based intervention became a useful tool to facilitate teachers in building a foundation for communication and language skills among children with ASD, as well as model a language that identifies with children's interests (Abdullah & Brereton, 2017). Clearly, the findings of the present study indicated that the AR Toys application which integrates with native languages is able to assist and motivate children with ASD in their social communication. In addition, this also facilitates teachers' efforts to foster communication skills in the child in the context of daily activities.

Theme 2: AR Toys Application can model Expressive Language to identify Child's Emotion

The study suggests that the AR Toys application is able to model expressive language to identify children's emotions. In this study, during the trial session most of the participants expressed the happy emotion when interacting with the AR Toys application. In addition, the study found that no participant felt sad or disgusted during the trial session. When interacting with the AR Toys application, a total of five out of seven participants first chose to interact with the happy emotion icon, while one participant chose the fear emotion icon and another chose the angry emotion icon. Subsequently, the findings indicated that six participants (85%) expressed happy emotions during the trial session. The teacher assisted the children with ASD to recognise and understand the five basic emotions when using the AR Toys application, and one child yelled 'Yeah'

after he successfully recognised the correct emotions the teacher had asked. The 'Yeah' also indicated one of the child's ways of conveying happiness. Another child clapped his hands and smiled to demonstrate the happy emotion when the teacher asked how to express happiness. Figure 6 shows the participant smiling when interacting with the AR Toys application.

Figure 6: Participant smiling when playing with the AR Toys Application

In an interview, one of the special education teachers discussed the impact of the AR Toys application on children's social emotional development.

"Yes, I agree that the contents are sensitive and interactive. Children are able to recognise and react to the emotions when using AR Toys application" (Teacher's comment).

This finding is supported by Tan et al (2019) who concede that the use of an avatar is able to encourage children with ASD to express their feelings when interacting with technology-based interventions. Additionally, Hughes et al (2016) emphasised that using an interactive and realistic avatar is able to improve eye gazing, facial expressions, and emotions among children with ASD. Hence, the findings of the current study indicated that the AR Toys application is able to model expressive language to identify the child's emotion in the classroom activity.

Theme 3: AR Toys Application can promote Pretend Play in learning Emotions for Classroom Activities

Based on the observation in the classroom, the study also identified that the AR toys application is able to promote pretend play in learning emotions for classroom activities. The teachers conducted a simple quiz (question and answer activity) for the children with ASD during the trial session. The teachers posed questions to the children about the emotion involved by giving a scenario and story, so that the children could guess the correct emotion for each scenario. Below is a conversation that occurred during the question and answer activity.

Teacher: *"Can you tell me what the face is?"* (Point to happy face)

Child: *"Happy".*

Figure 7 shows a child participating in pretend play with the AR Toys application, assisted by the teacher. In this study, the findings showed that four out of seven participants were interested in using the AR Toys application and tried to interact with it more than once. In the interview, one of the teachers commented on how the AR Toys application is able to promote pretend play.

"I am surprised that some of the children had pretend play with AR Toys, although they play with it alone, but it helps children to train their brain in generating ideas while pretend play" (Teacher's comment).

Figure 7: Participant in pretend play with AR Toys Application, assisted by the Teacher

This finding is supported by the study of Barton et al (2012) that demonstrated how pretend play using technology is important for children with ASD to motivate

them in their learning process and development skills. By adopting the technology, the researcher also found that children with ASD are able to play imaginatively and creatively develop stories utilising the virtual toy's objects (Mispa et al, 2016). Thus, the findings of the present study were that the AR Toys application is able to promote pretend play in learning emotions for classroom activities.

CONCLUSION

The study findings suggest that the AR Toys application benefits children with autism spectrum disorder and special education teachers because this application is capable of assisting the children in their social communication skills. Often, the teachers used the AR Toys application as an auxiliary tool to educate children regarding the five basic emotions. The AR Toys application was an assistive tool for children with ASD as it provided them good experience and exposure. In fact, the children showed positive engagement when interacting with the AR Toys application, as they were able to talk, imitate, and pretend play. Hence, this study supports social communication development among children with ASD in classrooms. The study concludes that Human Computer Interaction (HCI) research can support children with ASD by using AR technologies to help social communication, leading to better communication and engagement between teachers and children. In the next stage, this study would like to conduct another trial at a different autism centre, with a bigger group of participants, to confirm the effectiveness of the AR Toys application in facilitating social communication among children with ASD.

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Inclusive Education for Students with Visual Impairments in Lao People's Democratic Republic: a Qualitative Study

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ABSTRACT

Purpose: *This study aimed to explore the perspectives of teachers, students and parents on practices used in inclusive education (IE) settings for students with visual impairments. Their perspectives were then used to create a proposed suitable inclusive education model for these students in the Lao People's Democratic Republic (Lao PDR).*

Method: *A qualitative study was designed. The 20 participants included teachers, parents and students with visual impairments. Data was collected through focus groups, in-depth interviews, and non-participatory observations.*

Results: *It was found that inclusive education has been prioritised in Lao PDR. However, special schools or centres are still needed to teach students Braille and enable them to complete grades 1 and 2 before entering inclusive primary schools in the neighbourhood.*

Conclusion: *An inclusive education policy exists, but guidelines for implementation are missing, and coordination and cooperation among stakeholders is poor. The inclusive education model proposed by the study consists of clear policy.*

Key words: *inclusive education, perspectives, visual impairments, disability, Lao PDR*

INTRODUCTION

The concept of inclusive education (IE) encompasses the ideal that every child has a fundamental right to education, has unique characteristics, interests, abilities and

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learning needs, while supporting the idea that opportunities must be provided to secure inclusive education for all students with disabilities and special needs (United Nations, 2021). Through IE services students with disabilities have equal access to education which is founded on human rights and social justice (Mitiku et al, 2014). Inclusive education is inseparable from stakeholders including government, institutions of higher education, primary and secondary school leaders, educators, educational professionals, communities, and parents (Imaniah & Fitria, 2018; Okyere et al, 2019). In inclusive settings, students with disabilities are able to socially interact and develop relationships with their peers and do better academically than students in non-inclusive settings. This includes better performance related to social aspects, higher academic standards, and removal of the social prejudice that exists for people with special needs (McMillan, 2008).

However, many complex micro and macro challenges have been surrounding inclusive education for students with disabilities in both developing and developed countries. Micro challenges include teachers in primary schools who lack knowledge in working with students with special needs; lack of appropriate teaching skills; the absence of sufficient numbers of educational and rehabilitation professionals, and insufficient appropriate teaching media and resources. Macro challenges include a lack of participation of stakeholders; limited appropriate policies, strategies, and plans of action; poor provisions and enforcement of inclusive education policies; and, inadequate funding. Bubpha (2014) and Robiyansah et al (2020) opined that to bring about quality in education management for all, the government should reinforce the terms of policies: the development of better management systems, and promoting and continuously disseminating the importance and benefits of the concept; all issues concerning macro-level developments. The challenges of inclusive education are associated with negative attitudes towards persons with disabilities; the lack of confidence among parents regarding the capacity of inclusive schools to educate their children, often as a result of inadequate plans, facilities and a lack of adequate guidance and information services to support parents (Garuba, 2003). Sarao (2016) studied existing obstacles and challenges in inclusive education in India, with special reference to teacher preparation, and found the following: lack of time to prepare teachers for inclusion in general classes, lack of internship opportunities for teachers to learn about special children's education, inadequate strategies, and poor pedagogical guidance to educate students with disabilities.

From 1993 to 2009, Lao People's Democratic Republic (Lao PDR) implemented an inclusive education project supported by Save the Children Norway (SCN),

for students with disabilities. This project aimed to support the participation of all children in school, particularly students with disabilities, through the introduction of child-centred approaches to teaching and learning in 539 schools across the country. Grimes et al (2011) conducted an evaluation of this project and found that the new approaches were being effectively implemented by schools. However, significant challenges were also noted, including a lack of services and support for students with more complex needs and the risk of running a project with a beginning and an end, without having guarantees that implementation would continue.

The fourth Sustainable Development Goal mentions that States Parties should be committed to providing inclusive and equitable quality education at all levels to all people, irrespective of sex, age, race or ethnicity, and disability in order for these individuals to access life-long learning and exploit opportunities to participate fully in society (United Nations, 2015). The government of Lao PDR ratified the United Nations Convention on the Rights of Persons with Disabilities (CRPD) in 2009. A year later, the National Policy on inclusive education was promulgated by the Ministry of Education and Sports (MoES, 2011). Even the government recognised that education is a vital instrument in achieving a high quality of life and prioritised inclusive education for all its citizens. However, implementation has been challenging. There are only two special schools for the purpose of teaching Braille to students with visual impairments, giving them orientation and teaching mobility and daily life skills, and assisting them to complete grade 2 before entering grade 3 in inclusive primary schools nearby. These special schools are only situated in Vientiane, the capital of Laos. Special education facilities are available for children with disabilities but most special schools are located in urban centres (Garuba, 2003).

Even though primary education is compulsory in Lao PDR, statistics on students with disabilities have not been addressed in the Education Management and Information System (EMIS). Little is known about the effectiveness of inclusive education for students with visual impairments. A study conducted by Thoresen et al (2014) in a few representative provinces found that there were high needs for Lao PDR to improve the knowledge and skills at all levels and sectors in terms of the implementation and provision of education for children with disabilities.

However, it is interesting that even though there is yet to be pre-service teacher training on supporting students with visual impairments in Lao PDR, a few students with visual impairments were able to graduate from primary education

to higher education. The challenges are that inclusive education has not been truly rolled out in the entire country. As such, the assumption is that teachers in both inclusive primary schools and special schools have the necessary knowledge, skills, and experience in teaching students with visual impairments and could teach anywhere in the country in inclusive school settings. The situation may be different in different countries. It is therefore necessary that in studying the effectiveness of inclusive education in a local setting, local inputs, perspectives and experiences of both local people with and without visual impairments be considered.

Objective

Little is known about the existing inclusive education practices for students with visual impairments in primary schools in Lao PDR. This study explored the perspectives of teachers, students with visual impairments and parents, as well as existing practices of inclusive education for students with visual impairments, in order to develop an effective inclusive education model to support these students in primary schools in Lao PDR.

METHOD

Study Participants

There were 20 participants including 11 teachers, 5 students with visual impairments, and 4 parents who were selected through purposive sampling.

The inclusion criteria were:

Teachers - both with and without visual impairments, who taught students with visual impairments in inclusive primary schools and special schools for more than five years; Students with visual impairments – studying in grades 3 to 5 in inclusive primary schools; and,

Parents – whose children with visual impairments were studying in the inclusive primary schools and special schools, and who were willing to participate in this study.

Data Collection

Data was obtained through focus group sessions, in-depth interviews, and non-participatory observations (see Table 1).

The qualitative study data was collected through two-hour focus groups of three homogenous participants, i.e., a group of 7 teachers, a group of 5 students with visual impairments, and a group of 4 parents. Eight to ten guided questions regarding existing inclusive education practices, skills, and techniques of teaching and supporting students with visual impairments were used in the focus group discussions.

The forty-minute in-depth interviews with 4 teachers used guided questions similar to the ones used in the focus groups.

Lastly, non-participatory observations with eight dimensions, including classroom information, classroom activities, teaching techniques, teaching aids, assessment strategies, students' learning, and extracurricular observations, were conducted.

Table 1: Participant Characteristics of the Qualitative Study

Selected Participants	Numbers	Characteristics	Data Collection
Teachers (T1-T7)	7	- 3 females and 4 males - Taught at Phaxay inclusive primary school, Vientiane Capital Special School, the Light of Blind School	- Focus group - Classroom and school-based observations of extra-curricular activities
Teachers (T8-T11)	4	- 1 female and 3 males - Taught at Phaxay inclusive primary school, Vientiane Capital Special School, the Light of Blind School	- In-depth interview - Classroom observations
Students with visual impairments (S1-S5)	5	- 4 females and 1 male - Grade 3 to 5, aged 13-22 years old, studied at Phaxay and Nalao inclusive primary schools	- Focus group
Parents (P1-P4)	4	- 3 females and 1 male - Had a student with visual impairment who studied in Phaxay inclusive primary school and Vientiane Capital Special School	- Focus group

Data Analysis

The qualitative data were interpreted with analytic induction to create themes.

Ethics Approval

The study was approved by Mahidol University, Institutional Review Board (MU-SSIRB 2018/123-B2).

RESULTS

Positive Signs

Teachers' Perspectives on Inclusive Education

Teachers, who taught students with visual impairments in primary inclusive and special schools, participated in the focus group. They had a good understanding of inclusive education (IE) terminology in the context of Lao PDR.

> *"IE is meant to bring students with disabilities and ethnic students to study in the same class and same school with students without disability, without discrimination, both boys and girls, poor or non-poor students, by arranging the teaching and learning a bit specific as individual needs based on that type of need and disability" (T10).*

> *"Whatever students without visual impairment do, students with visual impairments can do as well, IE is where all types of students learn in the same classroom, same school and same curriculum and textbooks" (T3).*

These teachers had positive perspectives about placing students with visual impairments in inclusive schools.

> *"Teaching students with visual impairments cohort by cohort, such job makes me enjoy life professionally with never boring" (T1).*

> *"Students with visual impairments did not have barriers in inclusion as other disability groups because they were well prepared from the special school for two to three years, depended on their capacity before transferring into the inclusive school, especially in orientation, mobility and Braille" (T5).*

Parents' Perspectives on Inclusive Education

Parents who participated in the focus group preferred inclusive education because they found that their children studied well and fared better in the inclusive school.

The more time students with disabilities spent in regular classes, the more they were able to achieve as adults in employment and continuing education; this matched with the parents' perspectives.

> *"My son is the top student, each month he is number 2 or 3 top student in his class" (P3).*

Through inclusive education, parents believed that their children were able to spend time with friends without disability and were better equipped to live in real society. They noticed that their children had many friends and regularly interacted with children without disability.

> *"I hope as my child is in inclusive school, that he will be able to live independently when he has no more parents" (P4).*

> *"What I do for and invest in my child today, I never and will not call for return. I want my son to be himself, live independent when growing up and whenever without me" (P1).*

Students with Visual Impairments' Perspectives on Inclusive Schooling

Students with visual impairments' perspectives, as obtained from the focus groups, indicated that they liked inclusive school better because they study along with students without visual impairments; they have many close friends; their friends also help them in learning and in mobility; they have fun and are happy; they talk and play with friends; they enjoy school; they are not lonely; they learn better as their friends are helping them. Moreover, they also have the opportunity to help their friends, for example, by telling their friends to listen to the teachers, to obey them, not to be noisy and to concentrate on studying.

> *"We have best friends, both boys and girls, so we ask them directly to help, no need teachers to assign" (S2).*

> *"In the special school, everyone could not see, everyone just touched, sometimes someone crashed other persons or crashed the pole or wall because of unseeing, nobody could mutually help because everyone was in the same situation, it was so quiet and lonely, day and time were so long" (S1).*

Inclusive Education for Students with Visual Impairments in Primary Schools in Lao PDR

Even though inclusive education is prioritised in Lao PDR, the special school system is still used to prepare students with visual impairments to join neighbouring inclusive primary schools.

Four of the 5 students with visual impairments who participated in the focus group discussion were girls and one was a boy. They were studying in grade 3, grade 4 and grade 5, and were between 13 and 22 years of age. Due to their late enrolment, these students were mature in comparison to their classmates without visual impairments who were between 6 and 10 years of age. Age at admission and joining time in the Light of Blind School – a special school - is flexible for students with visual impairments; whenever they apply to be admitted they can start from pre-schooling. Grade 1 and grade 2 students with visual impairments in Vientiane Special School start their education from September to May each year to complete the standard curriculum of the Ministry of Education and Sports (MoES).

> *"There is no limitation of years for preparation. It depends on the student with visual impairments' learning capacity and his/her learning assessment results" (T10).*

Voluntary Peer Support without Systematic Disability Support Services

Peer-to-peer learning is applied in inclusive primary schools. Students with visual impairments always need support from their classmates, so each class teacher nominates at least one top student without visual impairment to be a buddy to students with visual impairments. Students with visual impairments always sit next to the class topper who is his/her buddy. During classes, the top students finish their exercises early and help the students with visual impairments, so that the latter are able to stay abreast of the classwork. Moreover, the buddy supports and accompanies students with visual impairments in playing, mobility and extra-curricular activities. Seating arrangements for every student with visual impairment are in the first or second row of the tables next to the teacher's table and close to the blackboard. In Vientiane Special School and the Light of Blind School, due to the small number of students, the classroom is organised with teachers and students sitting face-to-face at a table. Students with low vision always help their classmates who have a total visual impairment.

Challenges

Policy Endorsed but Slow Practical Implementation

In Lao PDR, the National Policy on inclusive education was endorsed in 2010 and the National Strategy on inclusive education was promulgated in 2011, but

guidelines for implementation have not yet been developed. This causes a gap in implementation, especially regarding budget allocations and appropriately-trained human resources development in support of inclusive education. In general, inclusive education is mainstreamed into the educational plans, but there is a shortage of professionally well-equipped personnel or experts, and a structure that is dominated by macro-level thinking and lacks attention for the more micro-, primary school level. The project method of promoting and introducing inclusive education has been risky in terms of its continued implementation, i.e., sustainability is at stake.

No pre-service Teacher Training for the Education of Students with Visual Impairments

Special education, inclusive education and providing support to students with disability, including those with visual impairment, are not part of the majors offered in higher education. Pre-service teacher training in the country does not as yet exist. Teachers in inclusive primary schools and special schools in Lao took intensive in-service training in Braille, and in teaching and supporting students with visual impairments. They were originally trained by the Association for the Blind and the Inclusive Education Project supported by Save the Children Norway (SCN). Often teachers also learn to work with students with visual impairments through trial and error, i.e., based on their own commitment and experiences.

> *"In teaching students with visual impairments or those who are blind, I am the key media, talk a lot or speak over the time because we do not have materials and equipment to support"* (T4).

Low Quality and Shortage of Teaching and Learning Materials to Support Students with Visual Impairments

The equipment and teaching materials to support and facilitate learning by students with visual impairments in inclusive primary schools are poor, basic or low-tech, simple and out of date. Only stylus and slates are being used. Abacuses are made from bamboo by teachers. Used A4 paper and unused calendars that are collected by teachers are used for writing Braille.

> *"There is no modern technology support at all, Braille typewriter is out of date and broken, no spare part, thus no more using"* (T1).

Almost all materials are pictures drawn with elevated and enlarged lines and are hand-made by teachers and students without visual impairment. Sometimes teachers bring or ask students without visual impairment to bring real objects from home, for example, an apple, tomato, leaves, flowers, which are especially useful for interaction during the drawing hour. There is no manual or computer enlarged assistance available to support students with low vision.

Rare Communication and Collaboration between Teachers and Parents of Students with Visual Impairments and among Relevant Stakeholders

Parents who live in the Vientiane Capital transported their children with visual impairments to school and back every day. They did not have regular contact with the teachers and had never attended any meetings with them. The parents mentioned that they were willing to contribute both materials and cash to the inclusive primary schools.

> *"I need schools to call for the meeting; I am pleased to contribute cash for gasoline for daily driving our children with visual impairments to study grade 1 and 2 at the new special school which was about 10 kilometers far from the central city" (P1).*

Parents who lived in the provinces rarely contacted teachers because of the distance and high poverty levels. Only teachers sometimes called parents to pick up their children from the provincial public bus station for the summer vacation break.

The relevant internal departments and the MoES are not involved, other than attending the national inclusive education thematic working group. Textbooks converted to Braille are still the responsibility of the Association for the Blind. However, the MoES does not share information about textbooks that are needed and this causes delay in the implementation of reforms.

No Standard Learning Assessment for Students with Visual Impairments

Students without visual impairment and students with visual impairments are assessed in the same way. Both groups of students are given a monthly quiz or test. All assessments are handwritten. Students with visual impairments write their answers and solve mathematics problems in Braille. To graduate to grade 3 in neighboring inclusive schools, students with visual impairments must be able to read Braille properly, and for mathematics, they should be able to use four

formulae (+, -, x and ÷), complete the national standard curriculum for grades 1 and 2, and pass the assessment. Thus, it depends on the academic ability of each student with visual impairment to graduate to the next level. Some of them needed a 2-year preparation period, or even longer, in a special school before they could graduate to grade 3 in a primary school.

Monthly quizzes and semester and final exam questions are not converted into Braille. The grade 5 final exam is an annual exam conducted throughout the entire country. Teachers who know Braille are invited to be part of the exam committee for the grade 5 final exam. Their role is to read the questions to the students with visual impairments who are given 20 to 30 additional minutes per subject. For some years students with visual impairments sat with students without visual impairment; at other times they were separated in a different room or centre. It all depended on the number of students with visual impairments who were writing the exam. In case they failed, they had to take an oral quiz.

> *"In case any students with visual impairments failed, they could take a second round exam that could be written or oral "(T5).*

No Special programme for Daily Activities

There are no extra-curricular activities, except for hoisting the national flag every Monday morning, physical exercise and teeth-brushing during every morning break and cleaning of classrooms. Students with low vision can participate in classroom- and school-cleaning activities, such as sweeping the classroom floor, cleaning paper trash around the school, wiping the tables and chairs, bringing drinking water to teachers and cleaning the toilets. But students with severe and multi-disabilities or physical disability are not involved at all. They just sit in the classroom quietly.

> *"The physical education practice, some exercise positions I could not do because my personal physical was not strong enough, so only 2-3 simple positions I could apply, I was excused"(S5).*

Some students with visual impairments participate in playing music, take part in the choir in their classrooms and at school, and teach singing to their friends without visual impairment.

DISCUSSION

Lao PDR has made a good start in developing a policy for inclusive education for students with visual impairments in some primary schools. Inclusive education is based on a social model which encourages learners with disabilities to be included in mainstream schools in order to become active members of their society (Hooker, 2007; Olinger, 2013; Franck & Joshi, 2017). In this study, teachers and parents of students with visual impairments had positive perspectives about inclusive education. This is in line with previous studies that parents, teachers and school administrators have positive perceptions about inclusive education. However, other studies found that there are some teachers and people in society who have negative ideas about inclusive education, and refer to children with disabilities who face obstacles in inclusive school settings (Thoresen, et al, 2014; Su et al, 2020). In the current study, while inclusive education evoked positive attitudes, it should be noted that special schools/classes in Lao PDR are still necessary to support and prepare students with visual impairments for inclusion.

The study also showed that despite having no systematic disability support services, there has been voluntary peer support for students with visual impairments. Some students with visual impairments in Lao PDR were able to graduate without applying for the individualised education plan (IEP). A few students with visual impairments were even top students in their classes. A student peer-to-peer approach was used, which is positive in terms of cohesion and solidarity. However, in terms of academic performance, it might be a burden, or even a barrier, for students without visual impairments as it will mean a reduction in their learning time. Also, reading aloud to students with visual impairments may disturb fellow students and may affect their concentration, which would impact their quality of learning. Peer support could provide multiple benefits and could be implemented feasibly and acceptably in inclusive classrooms among students with and without disabilities (Tuttle & Carter, 2020). Josua et al (2022) found that in inclusive schools in Namibia, the seats in the front row were occupied on a first-come first-served basis. No seats were reserved for learners with low vision, which is in contrast to the inclusive primary school in Lao PDR where first-row seats next to the teachers and blackboard are arranged and prioritised to students with visual impairments.

In spite of all the support from stakeholders for inclusive education for students with visual impairments in primary schools in Lao PDR, there are several challenges as well. Challenges include the absence of professional special needs

training for teachers, which leads to the lack of suitable knowledge and skills to teach, assess and support students with visual impairments; unavailability of appropriate and good quality learning materials and assistive technology; and, rare communication and collaboration among teachers, parents, and relevant stakeholders. Many countries, particularly low- and middle-income ones, face similar challenges (Lamichhane, 2016; Habulezi et al, 2016; Franck & Joshi, 2017; Nemirova & Kantor, 2020; Ajuwon et al, 2020; Magumise & Sefotho, 2020). It shows that although inclusive education policy has been endorsed, implementation has been ineffective. It is a discrepancy between policy as ideology and practice as the reality that usually occurs (Cheausuwantavee & Cheausuwantavee, 2012; Cheausuwantavee & Suwansomrid, 2018).

The successful implementation of inclusive education requires teamwork, along with communication, a professional community of teaching staff, and cooperation among stakeholders in general and more especially with special education providers (Olinger, 2013; Nemirova & Kantor, 2020). At the time of this study in Lao PDR, rarely was there communication and cooperation between teachers of the inclusive and special schools with parents, even those who were living in Vientiane Capital.

Teachers face many challenges including lack of special needs training; lack of appropriate preparation; rare receipt of upgraded information related to teaching students with visual impairment; lack of supervision by qualified and experienced teachers; limited guidelines, and limited technical and financial support to primary inclusive schools in Lao PDR. Classroom teachers reported they often felt that they were not prepared to work with children with disabilities (Olinger, 2013). The lack of special education experience and training in inclusive practices may have had a profoundly negative effect on teacher perspectives on inclusion and students with special needs. Obstacles to the implementation of inclusive education in terms of teachers' capacity strengthening were the lack of continuous workshops, seminars, projects, and internships for special educators; and a lack of adequate pedagogy and pertinent strategies to educate students with special needs (Sarao, 2016; Nemirova & Kantor,2020).

The absence of suitable knowledge and training in IE among teachers and educational providers will lead to low confidence and ambivalence among both teachers and parents to support students with visual impairments. Thus, capacity building of those stakeholders should be considered as being of utmost importance (Habulezi et al, 2016; Ajuwon et al, 2020; Magumise & Sefotho, 2020).

On the basis of the findings from this study, the following recommendations are made:

1. The MoES should review the National Strategy on IE and develop practical IE guidelines by involving relevant stakeholders, including parents.
2. Curriculum modification and improvement of assessments of students with visual impairments need to take place.
3. Screening is significant for every learning assessment.
4. Seating arrangements in classrooms for students with low vision should be a priority.
5. Developing and providing appropriate extra-curricular activities for students with visual impairments will help avoid the discrimination and loneliness they often experience.
6. Teachers in inclusive and special schools should be trained in inclusive education, Braille, and techniques to support and teach students with visual impairments
7. Data on students with (visual) impairments should be collected as part of the Education Management and Information System (EMIS) for planning and budgeting.
8. Special schools/classrooms are still needed in Lao PDR. To be cost-effective, existing special schools should be transformed into demonstration schools and resource centres where teachers can get intensive training during summer vacation. Such special schools can contribute to scaling up inclusive education for students with visual impairments in other provinces.
9. Students with visual impairments and students without visual impairment should be prepared for inclusion, to reduce and eliminate stigma, physical and verbal bullying. This can lead to mutual acceptance.
10. Effective network mechanisms for communication and cooperation among teachers and relevant stakeholders, including parents, should be facilitated.
11. This study did not give an in-depth description of the process of transition from special schools to inclusive primary schools. Therefore, further research could emphasise the importance of improving the transition process.

12. The proposed IE model was developed by drawing on the lessons learned from other researchers' IE models, teachers' existing practices, and participants' perspectives and attitudes. Fourteen IE experts validated the study. However, further studies as well as piloting of this model is needed.

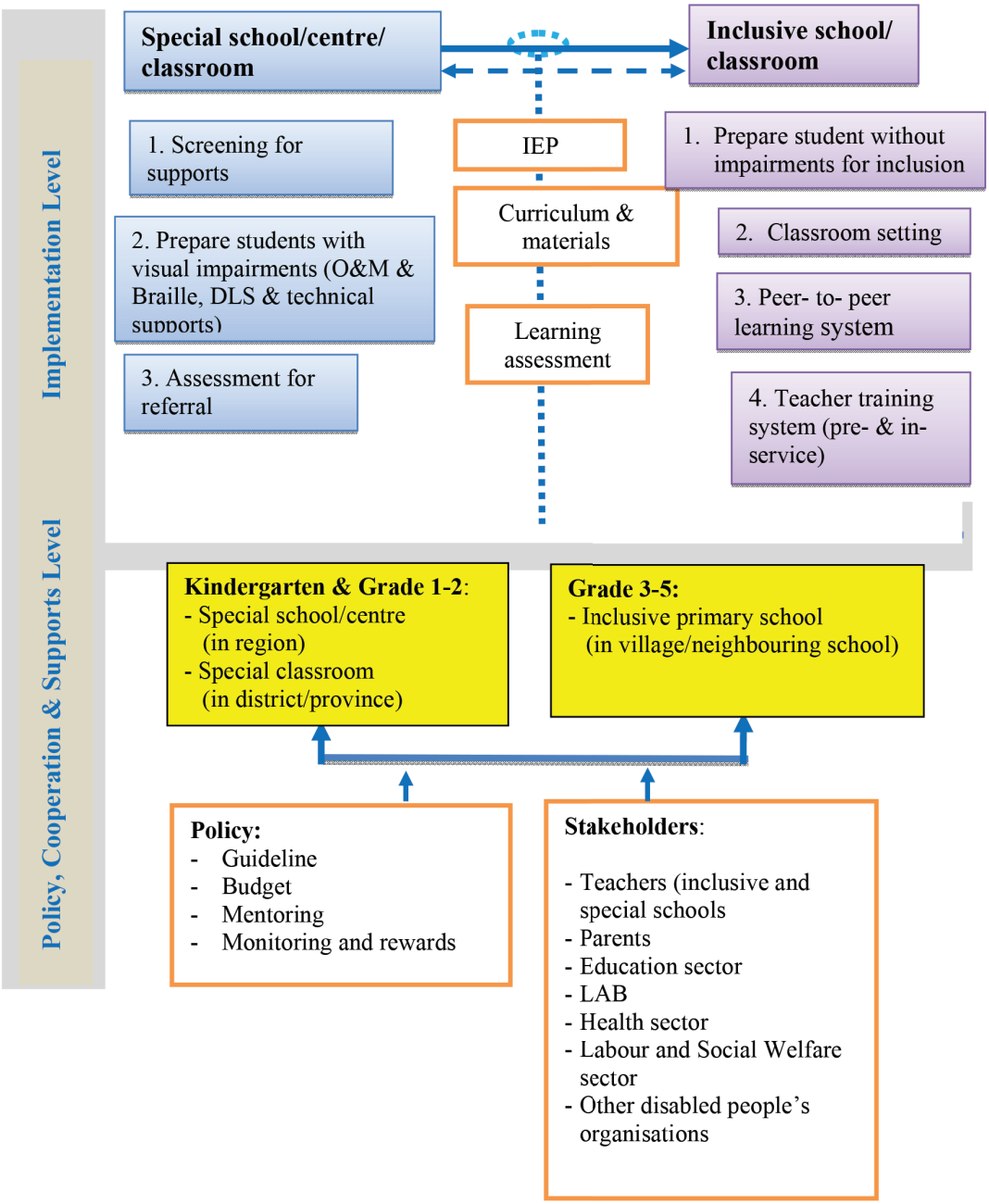
Based on a comprehensive literature review of the inclusive education models of Vorapanya (2008), Salend (1990), Mitchell (2015) and Robiyansah et al.(2020), the current authors have synthesised the most frequent elements of those models with the qualitative findings of the current study and propose an IE model to support students with visual impairment in primary schools in Lao PDR (see Table 2 and Figure 1).

Table 2: Key Elements of IE Model for Students with Visual Impairments among Literature Review, Study Findings and Proposed Effective IE Model in Lao PDR

Key elements of IE model for students with visual impairments from literature review	**Key elements from this study findings**	**Key elements of proposed effective IE model for students with visual impairments in Lao PDR**
IE policy is one priority, needs access to national budget	IE for students with visual impairments was accepted, policy existed but its practice was a challenge, and limited national budget	Taken IE policy into practices and expanded IE into the provinces. Practical guidelines to be developed systematically for students with visual impairments' education with appropriate budget
Screening and assessment at schools of three kinds, such as observation, using testing protocols and interviews with parents	There was no screening and assessment system in schools, except recognised visible disabilities	Early grade screening and assessment in all schools, it needs cooperation between parents, education and health sectors
Preparation of both students with visual impairments and students without disabilities	Preparation of students with visual impairments, special schools were required for this	Special schools or centres prepare students with visual impairments in Braille. Students without disabilities should be instilled with positive attitudes toward students with visual impairments
IEP	There was no IEP use in the inclusive primary schools for students with visual impairments	IEP should be applied for progress and improvement of needs

Teachers were the heart of the IE for students with visual impairments , teachers claimed for training and supports	There was no pre-service teacher training on teaching and supporting students with visual impairments	In-service teacher training to be regular and pre-service teacher training to be set up for sustainability and being able to expand to the provinces.
Curriculum adaptation for students with severe visual impairments	There was no adapted curriculum for students with visual impairments in Lao PDR but some lessons were modified by teachers' decision	Standard of substituted lessons to be determined
Teaching and learning materials to facilitate teachers and support students with visual impairments	Shortage and poor teaching and learning materials in inclusive primary schools, most were hand- made and basic, developed by students without disabilities or teachers who brought real materials or objects from home	Budget to be allocated for teaching and learning materials to support students with visual impairments in inclusive primary schools
Stakeholders' communication, cooperation and support including parents and students with visual impairments	Limitation of communication, cooperation and support from relevant stakeholders	Mechanism of stakeholders' communication, cooperation among education administration, teachers, LAB and relevant sectors to be improved
NA (No more mentioned)	Peer- to- peer studying was popular in the inclusive primary school for students with visual impairments	Peer- to- peer studying to be kept going for learning and cohesion since early age

Figure 1: A Proposed Effective IE Model to Support Students with Visual Impairments in Primary Schools in Lao PDR



STUDY LIMITATIONS

The small sample size was a limitation. Very few students with visual impairments access education each school year. During the period of data collection, there were only four students with visual impairments who were in grade 3, grade 4 and 5.

Also, there are only two inclusive primary schools that accept students with visual impairments in Lao PDR. Unfortunately, teachers of one inclusive primary school participated only in the quantitative data collection and refused to participate in the qualitative data collection.

CONCLUSION

In summary, teachers from the primary school level up to the university level exhibited positive perspectives toward inclusive education for students with visual impairments. All the same, placement of a student with disability into a regular classroom is challenging. There is a policy that endorses inclusive education but there are many challenges in terms of implementation. To expand education for students with visual impairments in Lao PDR, effective IE models and practical guidelines are needed, and in particular, pre-and in-service teacher training in order to help teachers provide specific support to students with visual impairments. Cooperation and communication among teachers, parents, and other relevant stakeholders need to improve.

ACKNOWLEDGEMENT

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LETTER TO EDITOR

Dear Editor,

Sub: Review of article entitled 'Effect of Abacus training on numerical ability of students with hearing loss' by A. K. Jadhav and Varsha Shriram Gathoo, in Disability, CBR & Inclusive Development Journal

The above article has been systematically written and work carried out is methodical. The paper is sufficiently detailed with clear objectives. The readability of paper is high. The theme of work is of high relevance. However, the reviewer has the following to point out in various headings.

1. **Sample:** The authors should specify how many total students with hearing loss were available in the 'randomly selected schools'. Secondly, on what basis were these selected 90 students finalized to be included in the sample? Thirdly, the distribution of male and female students is quite unequal in experimental groups, no reason has been cited for this inequality. Also, the distribution of sample is highly unequal in experimental and control groups (35 versus 55). If the subjects were available, then why are groups unequal in size? Fifthly, the level of hearing loss has not been specified in the sample subjects. It is possible subjects with different level of hearing loss would benefit from different pedagogy or differently from same pedagogy.

2. **Hypotheses:** In abstract, there is a mention of objectives and six null hypotheses. Reviewer could not find them anywhere in the text of the paper.

3. **Statistical analysis:** Authors mention that equal variances was assumed for t-test. Why was it not tested and just assumed? More specifically, when sample distribution is unequal? It has been mentioned (page 60, second last line), that the " pre-existing superior abilities of the boys on word problems may have been enhanced due to……..". If it was so, then ANCOVA should have been used. The values of standard deviation in two compared groups are seen to be fairly uneven (table 4). In that case, assumption of equal variances was not valid to make to start with.

4. **Parsimony:** Consider Table 5.Caption of table can just read 'Overall gain in numerical ability w.r.t gender'; 'In the Experimental group' can be deleted, since Group EG is mentioned in table. Strangely, mention of CG and details is not there. Critical value is repeated three times in table 4 and table 5. One

single mention of this value at bottom of table would suffice. Thirdly, word significant is repeated three times, it can just be indicated by putting an asterisk on significant values. This applies to table 4 and 5 both. Column of retained/ rejected is redundant.

5. **Language:** Consider first page, first paragraph of introduction, second last line. It is not language which is key barrier to success but deficiency in language which is a key barrier.

6. **Role of kinesthesis in learning of mathematics:** Consider page 68, second paragraph, third last line which reads "since no kinesthetic sense is used, students may not be able to apply their knowledge, when it comes to word problems." Reviewer has the following points to make

- It is assumed that sample subjects can see since only their hearing loss is mentioned. When one sees while working, vision dominates (Posner, Nissen and Klein, 1976; Smyth 1978) so much that it is difficult to focus on modality of kinesthesis. It hinders the use of feedback mechanisms (e.g. kinesthesis) emanating during learning.
- Secondly, is kinesthesis facilitatory for learning or retention of learnt word problems? It may help in spelling or recognition of digits and alphabets or basic addition but not in word problems where cognition and central processing is required. Kinesthesis is related to memory of movements, it more relates to sense of position and movement of body (Edwards, 2011; Stelmach, 2014).
- Reviewer is of the view that learning of word problems would require central processing capacity. Kinesthesis is feedback oriented (Bansal, 1984; Wikipedia, 2022). There is compelling evidence (Laszlo, 1966) which is still quoted today (Stelmach, 2014)that central programming mechanisms operate independently of peripheral feedback.
- Kinesthesis may benefit persons who need assistance in activities of daily living (ADL), who need somatic feedback to reduce the physical effort required to move (Wikipedia, 2022)

7. **Reference work:** Works of Gregory, Pagliaro, Bellonio and Shwalb cited in other journals may bear the years for the benefit of consumer to know the recency of works. Secondly, on page 62, second paragraph, various authors' first names are given in the text, the practice is to give only surnames. Thirdly,

references of Froeble, Montessori, Piaget, Dienes and Bruner found in text are missing from list of references given in the end.

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Dear Editor,

Streamlining the process to support higher education: a case for technological adoption

Highly qualified and experienced healthcare professionals are in demand worldwide, with targeted efforts directed at recruiting and retaining high-calibre individuals. The industrialized countries: North America, Europe, and Australia actively engage recruitment agencies to identify professionals to meet the demands of their healthcare services. Asian countries, such as India, are one of the top sources for hiring qualified professionals to meet healthcare needs in foreign countries. Comparable education and established licensing processes for some professions have facilitated the significant movement of this personnel. For instance, physical and occupational therapists from India have an established track record of relocating to Canada or the USA. While moving to industrialized countries to continue pursuing one's profession is highly lucrative, transitioning from the home education system to obtaining a license in a foreign country is arduous. The first step starts with getting certified documents from the degree-granting institutions.

The primary objective of this report is to present the current process and barriers to accessing certifications (academic marksheets and transcripts). I will make a case for technology adoption to minimize barriers to procuring these documents from the Maharashtra University of Health Sciences (MUHS), one of the largest publicly funded universities in Nashik in the state of Maharashtra. The University offers undergraduate, graduate, and doctoral training in several health sciences disciplines.

The barriers to obtaining certified documents are listed below.

1. Information

a. **Accessible information**: There is no publicly accessible available information on the application process or cost of obtaining certified documents on the University's website. The only way to know about any changes to the process is by calling a landline number. The applicant has to be mindful to call during office hours, keeping in mind the lunch breaks and meetings when the personnel is not likely to be around. The landline is not equipped with a voice messaging system requiring multiple attempts to reach the

proper personnel. This method is inaccessible to applicants from different time zones and those who are currently residing outside India.

A 2020 notification has a standard form for application submission to obtain undergraduate documents. While the process for postgraduate and doctoral trainees still involves application through the applicant's college of training. In case there is an urgent need for these documents, for example, the deadline for application submission to a foreign university, the University offers an in-person application submission and pick-up. It involves the applicant or a relative physically visiting the University campus in case the applicant is already out of India. The MUHS-affiliated colleges are located across Maharashtra State, with the farthest college located at around a distance of 627 kilometres. In-person application is quickest, but the travel and accommodation added to the expenses.

b. For postgraduate and doctoral professionals, the application to obtain certified and sealed marksheets and transcript starts at the training college, which may be in a different part of the State. This process is exceptionally challenging for professionals who have moved to other countries. The application process involves submitting seven copies of all documents and the payment at one's training college. These documents are marksheets, transcripts, and other evidence supporting degree completion. This first step is rarely a one-time process, and it is well known among the applicants that it takes multiple human resources visits. A very likely scenario that is a significant barrier where the professional's training college is located far from their residence. Another barrier to access is when the human resources personnel are unaware of the process or are on leave with often no replacement.

2. **Payment method and cost**: There are currently two payment options; an online and a demand draft. The only option is only available to those who wish to receive undergraduate marksheets and transcripts. For any other training levels, the only payment option is by demand draft (similar to a certified cheque) from a nationalized bank. This process involves an in-person visit to a bank. Applicants who requesting postgraduate transcripts and marksheets require a separate payment made to the college through a second demand draft.

3. **Minimum copies**: The University stipulates a minimum of five copies per application with an additional cost for more copies. The submission involves providing seven copies of all documents. When the documents are certified, sealed, and sent back where the college retains one copy, the University retains the second, and the applicant receives five copies. As there is a minimum request of five copies, any future submission will require you to repeat the whole process, as one can only request fewer than five copies. As it stands, the college and the University will accumulate one copy each for every applicant and with every application.

4. **Receipt of submission**: Once the application is submitted at the college, there is no way to track the progress or application status. Currently, the University only provides hard copies of certified documents. No alternative allows one to retrieve or submit soft copies of the documents. These have been critical options during the current COVID-19 pandemic that enforced travel and in-person restrictions. There are several secure ways to receive and share documents; for instance, the National Student Clearinghouse offers cheap options to electronically submit documents with most University and educational credential evaluation organizations. The University uses a speed post service which relies on the recipient being at the delivery address to receive the documents.

5. **Cost**: From an applicant's perspective, this is not an inexpensive process. The cost of obtaining five certified and sealed transcripts for an undergraduate degree in physiotherapy is ₹ 20,350 INR, and that for a postgraduate is ₹ 16,250 INR. There was no accessible information about these costs. The cost of the whole process is directly proportional to the year of graduation. Additional costs involve any forms that need to be filled out by the University. For instance, the University charges an additional ₹2,400INR per degree to fill a document required for international educational equivalency agencies such as World Education Services.

Potential solutions

The transformation will require a systemwide change to minimize barriers to healthcare professionals to obtain their certifications. There are several steps the University could implement to transform the current process.

a. The University should have a dedicated webpage that clearly states the steps to receiving any documentation, including information, application, documents, costs, and other details.

b. Implement an online system to submit, track, and retrieve applications. Every student registered at the University has a unique Permanent Registration Number that could be used to retrieve all records, thereby avoiding the applicants having to send paper copies, a positive step towards a paperless solution.

c. There is already an online payment system available to procure documents for undergraduate degrees, which could cover all levels of training. An option to submit a demand draft could be retained while the system is modified or in situations where online payment option is not possible. Finally, the University issues separate documents, marksheets, and transcripts. Most international academic institutions will generate a single copy, including grades (marksheets), transcripts, and other academic achievements. This transformation will require collaboration with different departments and colleges and best done with feedback from the end-user and applicants.

The above-listed barriers will require consorted efforts and commitment across the board to streamline the process of procuring documents and make the process cost-effective and less stressful for everyone, irrespective of geographical location. Adopting a secure platform that will accept applications and payments, process the request, and deliver the documents will be a step in the right direction.

Dr. Kedar K. V. Mate BSc (PT), MSc, PhD.
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Dear Dr Kedar Mate,

Thanks for the submission of your letter to the editor, which I have been hesitant in accepting. The fact is, most our readers are from low- and middle-income countries, and I would say that your letter is not in the interest of promoting rehabilitation services in these countries given the already usual lack of interest and political will to invest in the field of disability and rehabilitation there.

As editorial team, we have been drafting a while ago a new strategic plan and it means that we wish to make DCIDJ a journal that increasingly becomes more involved in policy debates and, as such, play a role in lobby and advocacy for certain causes. We wish to become increasingly relevant for practitioners and people with disabilities and their families especially. As such, we will at times be bold in terms of what we publish and what not.

The acceptance of your letter will, to some extent, serve a small group of practitioners and hopefully lead to some reflection in terms of the (ethics of) recruitment professionals for jobs in high-income countries. We are certainly not blaming them personally for working in high-income countries. However, we want to stress to the reader that we are not in favour of the – at times – serious brain-drain taking place in the field of rehabilitation. Aggressive recruitment is already taking place among final year students: I witnessed this myself at a university in Bangladesh where I was a few years ago.

So many countries struggle to provide even the most basic rehabilitation services for their inhabitants. The World Health Organisation (WHO) and professional therapeutic bodies are clear in their action plans (e.g. Rehab-2030) and messages that an increase of rehabilitation professional is urgently needed. While this certainly is needed, this is largely taking place at the expense of a diminishing focus on mid-level and grassroots rehabilitation workers. Yet, today's reality is that senior ministers (Health, Social Action and Civil Services) from an African State recently expressed in an exchange meeting that in the coming 100 year their country would neither be able to afford nor to train the necessary numbers of rehabilitation professionals to serve the needs of all. Let's thus be extremely careful to respond as individual professional to the temptations of working in western societies. These countries have their own problems and are confronted with double greying and at the same time serious challenges because of a too small workforce. It is however questionable if this should be done with personnel from low- and middle-income countries.

Huib Cornielje (Editor-in-Chief)

REVIEWS

Memories that linger… my journey in the world of disability by Padmani Mendis: an autobiography

The longer I was reading this book, the more I realised what a tremendously rich and fulfilling life Padmani Mendis had and still has. As one of the 9 children taken care of by her mother who got widowed at the age of 34 years (!), Padmani became that famous 'mother' of Community Based Rehabilitation (CBR) I first had been reading about in the year 1984. This was back when I myself was facilitating, or developing, a programme that turned out to be called CBR. The CBR training manual of the WHO – co-authored by Padmani – next to David Werner's manual Disabled Village Children, formed the only resources that I had, and which guided me in my work. Now almost 40 years later, I am having the privilege to write a review about the many memories that are captured in this book. We met in person at the WHO building somewhere before the (what I call) 'new CBR' was introduced by the WHO. I remember the photographs that were taken at one of the workshop days of the gurus of CBR (Padmani Mendis, Gunnel Nelson and Einar Helander) and felt both honoured and at the same time a young and still inexperienced CBR worker. We had our small side talks when we both felt that the old CBR got too much criticism and that the reality of the lives of people with disabilities in many parts of the work hadn't changed that much. We were both critical about the CBR matrix which got so much attention but basically is a simple incomplete representation of what life is all about for people with and without disabilities. There was that bond between us which again comes to life when reading her book.

For those who want to know more CBR and its history and the role Padmani played as a physiotherapist in so many parts of the world, I can only say that this is a book about an extraordinary woman; someone who hasn't been looking for fame. Rather, it is the extraordinary story of someone who wants to serve and make this world a better place. The book is about the memories of a child having grown up in Sri Lanka, and later on of a student, a nurse, a physiotherapist; someone who served mankind in many ways.

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The chapter about testing the CBR model in Botswana was a highlight for me. I recognised much of it as I worked myself 6 years among the Batswana in an area in South Africa bordering Botswana. Other readers may associate themselves more with other countries that Padmani visited. The beauty of the book is that there is eye for detail; details which one may have forgotten – at least her Botswana encounter was a reminder for me – and brought back many nice memories. I of course enjoyed the paragraph about Marjorie Concha from South Africa with whom I personally worked for a period of 4 years as consultant in a CBR programme at Tintswalo hospital in South Africa. The world is sometimes very small!

Padmani's book is also a beautiful book for those having an interest in the history of CBR. CBR as it was in those early years has been criticised as being too medical. For those who still feel this is the case, I would strongly advise to read the book and understand why and how CBR developed the way it did; start appreciating the new – radical approach in those years – and realise that even in the year 2023 we cannot do without the commitment, the passion and the love for community-based approaches. Disability as much as rehabilitation takes place in a certain context and if one tries to ignore that – and thus ignore tailor-made approaches both for working with individuals as well as communities, one makes a serious unforgivable mistake. Geneva-based solutions for non-Geneva based situations will lead to detrimental developments.

The last chapter is a chapter of thankfulness and a song about that Wonderful World that we live in. The world in which one woman played such a remarkable role; remained positive, with dreams of a continuing development of CBR – or CBID, as some may prefer to call it, as long as people with disabilities, their families and communities are being served.

Huib Cornielje

Comprehensive Text Book on Disability

BS Chavan, Wasim Ahmad, and Raj Kumari Gupta
Publisher: Jaypee Brothers Medical Publishers P (Ltd)
ISBN: 978-93-5465-551-7
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"Education is the most powerful weapon which you can use to change the world." ~ Nelson Mandela

According to The Rights of Persons with Disabilities Act, 2016, 'Person with disability' means a person with long term physical, mental, intellectual or sensory impairment which, in interaction with barriers, hinders his/her full and effective participation in society equally with others. The persons with disabilities have equal rights to live a purposeful life of dignity. One means of achieving that is to have well qualified professionals engaged in educational rehabilitation of children with disabilities. In India there are many educational institutes offering programmes in special education that are recognized by The Rehabilitation Council of India, a statutory body of Government of India. The students attending these courses and their teachers as well, seek information from various sources to get the correct and latest information about the conceptual framework, assessment and intervention techniques, teaching strategies and many other issues that are contextual. The socio cultural aspect of disability is India would be very different from that of any developed nation. Community based rehabilitation for example is very culture specific. To fill in the gap of having a complete all-encompassing information, 'Comprehensive Text Book on Disability', is a significant contribution to the field.

Prof B S Chavan and Dr Wasim Ahmad and Prof Raj Kumari Gupta have edited this comprehensive text book on disability. The knowledge of the fields which the three editors had, was complementary (Psychiatry, Intellectual Impairment, Education, Human Biology and Psychology) and it has really helped in presenting the book in its present shape. They have accomplished an arduous task of bringing together contributors to explore various aspects of disabilities.

There are quite a few books available on disability by western authors but I have yet to come across any book by Indian authors which is as comprehensive as this

one. There are eighty chapters divided into nineteen sections focusing on different disabilities including neurodevelopmental disabilities, sensory disabilities, multiple disabilities, genetic disorders and mental illness. One hundred and eighteen writers including university professors, medical doctors, rehabilitation practitioners, clinical psychologists, occupational therapists, special educators, and lawyers have provided diverse perspectives to disability making this book all -inclusive. The authors are not only from India but across the world thus providing a global view of disability.

The book is truly comprehensive including essays on early childhood education, assessment, curriculum development, legislations related to disability, and many special issues concerning disability. Attention is also rendered to the current trends in research in disability area, the integration of technology for education and independent living of persons with disability. The field of disability is so dynamic and rapidly changing so, care has been taken all subject-matter in the book encompasses up to date information. The contributors provide a well-rounded perspective, in shifting focus from disability as a medical condition only needing clinical intervention to giving it due social and academic legitimacy. Breaking the myths and stereotypes associated with disability, insight is given for the causes and manifestations of various disabilities. The role of family and society in breaking the attitudinal and physical barriers is also discussed thus enabling the reader to recognize how to unlock the potential of so many persons with disabilities who have so much to contribute to the world.

What makes this book special is its far reaching appeal. The students studying special education programmes at under graduate level and postgraduate level including in-service teachers at school and college can refer to this book on an array of subjects in context of a disability.

This is a resource book not only for trainees in the field of special education but also for medical health including rehabilitation psychologists, clinical psychologists, and allied professionals.

Given the legislative mandates on inclusion in India, for including students with disabilities in general classrooms whenever possible, general educators must be aware and equipped with knowledge and skills to address the diverse needs of special children in their classrooms. This book is therefore, appropriate for the students and teachers of general education. This book is also useful for professionals in other allied fields who work with special children viz. speech-

language pathologists, audiologists, occupational therapists, counsellors and school psychologists and school administrators.

The presentation of the book is clear with consistent chapter structure. The reader gets to read a synopsis of each chapter right in the beginning in the form of an abstract and at the end in the form of top takeaways. Images, tables and boxes break up the text and make the chapters more comprehensible. The language used is easy to read and comprehend.

Every chapter gives a glossary of important words appearing in that chapter. There are also exercises for the reader to check his/her own knowledge gained after reading a particular chapter.

A colourful representation would have made the book more attractive. A hard cover would have enhanced the longevity of the book. But I understand, this book should be accessible to far and wide population and therefore the cost factor has to be kept in mind.

In my opinion this is a Bible of a sort for those who want to seek knowledge about disabilities. I strongly recommend this book and I, for one, will be assigning this book to my students.