

## Article

# Comparing the Two Educational Systems for Visually Impaired Students in Sudan: Pros and Cons

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**Abstract:** Students with visual impairment in Sudan are usually accepted into residential segregated schools during their pre-high school years. This schooling system remains a subject of excessive debate among those interested in this field of study. This debate is part of an ongoing conversation and discussion on the merits and demerits of integrating disabled children with non-disabled peers at regular schools. This study aimed to answer three main questions pertaining to this subject. The first one tackles whether the placement of visually impaired students in specialized schools for the blind in Sudan (henceforth specialized schools) serves their education best. The second compares the advantages and disadvantages of integrating this group of students into regular schools as opposed to separating them into specialized schools. The third question is concerned with the competencies which the teachers at the Sudanese General Basic School should have in order to fulfill the requirements of the inclusive education setting. Interviews were conducted with a group of 20 participants; 10 of these were students who joined schools for the blind and regular schools in Sudan, while the remaining participants were teachers and personnel in the field of education for the visually impaired in Sudan. Thematic analysis was used to analyze the interview data, which revealed that students with visual impairment, teachers who work in specialized schools, and the group of special education officials who participated in this study were in favor of inclusive education at regular schools after securing the necessary educational needs for these students to access school curricula equal to their sighted peers. Many practical solutions and suggestions have been presented to enhance the education of the visually impaired in Sudan.

**Keywords:** inclusive education; visually impaired; specialized schools; Sudan



**Citation:** Salih, H.E.B.; Kakizawa, T. Comparing the Two Educational Systems for Visually Impaired Students in Sudan: Pros and Cons. *Educ. Sci.* **2022**, *12*, 411. <https://doi.org/10.3390/educsci12060411>

Academic Editor: Peter V. Paul

Received: 20 April 2022

Accepted: 15 June 2022

Published: 16 June 2022

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## 1. Introduction

Several researchers, including Ajuwon and Oyinlade [1], Bina [2], and McMahon [3], have identified a number of factors in support of placing students with visual impairment in specialized boarding schools. One of these relates to the fact that the number of these students has always been relatively small compared to the rest of the student population. They also considered the rationale that these specialized schools have the necessary equipment, materials, and other educational resources required to educate such students. By gathering this group of students in one place, it becomes more likely to find professional teachers experienced in teaching them. However, other researchers argue otherwise. For instance, Cutsforth argued that excessive extracurricular activities at residential specialized schools cause students to feel fatigued and, consequently, become inattentive during classes [4]. These educational institutions justify their intensive focus on extracurricular activities by their desire to keep the students active rather than inactive. Although specialized schools may offer expert, in-depth attention to students' educational needs, their residential placement component takes the children away from home and family and segregates them from their non-disabled counterparts [5]. Likewise, Punia and Berwal found that the feeling of isolation among students at specialized schools stems from the long time spent away from

their family and society and the inadequacy of opportunities to interact with other people outside the school [6]. This situation may result in a feeling of self-strangeness among these students. Inconsistently, dissatisfaction with placing these students in inclusive settings has also been shown by Hatlen, who stated that students in inclusive settings remain socially isolated because they do not have the opportunities to learn social interaction skills such as mobility-related skills, spatial knowledge, and non-verbal communication [7]. Such skills, rather than being acquired incidentally, must be specifically taught as a part of the expanded core curriculum. Other studies have proposed various guidelines to enhance the educational environment in an inclusive setting. Studies have implied that disability contributes to the poor personal development of social skills; thus, there is a need for intervention to augment the acquisition of the required skills for social interaction and enable effective socialization with their sighted peers [8–10]. Recent studies have shown that it is necessary for students with visual impairment within inclusive settings to receive special education services so that they can participate in class activities [11,12]. Likewise, active learning and gaining full access to the general curriculum are factors that may contribute to lessening the feeling of loneliness among these students. For instance, these students cannot interact and meaningfully participate in learning because instructional materials are inaccessible to them. Whitburn found that several pedagogical strategies may effectively enhance the inclusion process to facilitate independent access to learning materials, such as the use of proper means of communication that suit every individual according to their abilities, securing the instant accessibility of the teaching material, and the availability of post-school individual consultancy [13]. As implied by Brown and Beamish [14], Chiu and Wild [15], Lieberman and Conroy [16], Lewis and McKenzie [17], McKenzie and Lewis [18], Suvak [19], and Wolffe and Kelly [20], in addition to several other researchers, students need to learn extracurricular competencies from qualified professionals. The deficiency of a systematic curriculum that secures the teaching of disability-related skills or the Expanded Core Curriculum will have destructive consequences, such as students graduating from school without the requisite skills and knowledge for postsecondary education, productive employment, independent living, and community and public contribution. Other studies, such as Ajuwon and Oyinlade [1], Marks, Kurth, and Bartz [21], Papuda-Dolinska [22], and Pogrund, Darst, & Boland [23] have emphasized that the advantage of both settings should be utilized throughout the educational process for more academic and professional gains; thus, students who are blind should have the option to participate in some regular classes within inclusive settings and may join classes at specialized schools to receive instruction in various specialized subjects so they can gain valuable social experiences by interacting with their peers who are visually impaired. This event must be regularly available outside of inclusive educational settings.

The non-existent experience of inclusion has led to considerable resistance in some places to educational inclusion, which has created a leading barrier to the provision of quality education for learners with disability within a mainstream education system. However, most countries have gradually transitioned from a completely segregated approach to a more inclusive one and the movement from separate special education towards a more inclusive approach has been the worldwide trend [24–27]. The development of special education and the transition towards inclusion was supplemented by the enactment of inclusive education-related regulations that outlined the ways students with visual impairment are to be included in mainstream schools. The legislated laws were intended to overcome the already existing barriers such as the inherent negative beliefs about disabilities, together with limited training of teachers. Due to the enactment of related laws and regulations, inclusive education has witnessed momentous expansion and proliferation in various countries. For example, as reported in [28–30], new legislation in South Korea, Thailand, Turkey, and Poland has expanded special education provision to the point where it is not only being provided in special schools, but also in general classrooms, integrated schools, resource classrooms, hospitals, and homes as a form of itinerant education. The integration of students who are visually impaired is also conducted via teaching students

certain subjects such as mathematics, science, and English in the primary stages by blind teachers or specialists in the education of the visually impaired, and the remaining subjects are taught with their sighted peers. Additionally, the new regulations have shifted the way special schools operate, thus it also transformed from only providing education for students to the provision of instruction in disability-relevant skills for students integrated with public schools. Consequently, student numbers in public schools have progressively increased. Previous studies [31–38] pointed out valuable guidelines for enhancing the learning environment to promote the inclusion of students who are with visual impairment. These guidelines can be summarized as follows:

**Assessment of the learning needs of the students:** assessment should be conducted prior to the education process because of its importance both for the students and the teachers. It allows for the understanding of the students' academic abilities and learning techniques.

**Collaboration with Parents:** since parents are the likely source of information about their children, they know their interests and their academic abilities, and they can make a major contribution to their education.

**Individualized Education Plan (IEP):** this is specifically designed to meet the needs of those students. Team planning and implementation of IEP are vital, thus parents and teachers are required to work in co-operation to set the precise goals that meet the academic needs of the students, and the teacher then should implement the proper teaching strategy.

**Co-teaching:** this is vital in inclusive education, since inclusive classrooms comprise students with diverse educational needs. A single teacher cannot have all the skills needed to meet the different learning needs. Co-teaching involves two teachers teaching the same class, so the regular teacher takes responsibility for sighted students, while another teacher deals with the specific skills relating to the visual impairment such as teaching skills like reading and writing by using Braille, glasses, lenses, etc.

**Appropriate Study Environment:** the students should be able to adapt easily to an appropriate learning environment to enhance their academic performance. The availability of learning materials should be well-organized as well as the technology and the assistive devices since the full utilization of such devices will assist students to facilitate learning and efficient acquisition of the study material.

**Proper Teaching Methods:** as a consequence of a deficiency of teaching skills and abilities to deal with students who are visually impaired, students would experience academic challenges and may not receive proper educational instructions. In some educational institutions, the teaching methods are not properly evaluated and thus teachers do not have adequate knowledge concerning various techniques that are used to teach students with a visual impairment such as the use of Braille materials, preparation of hearing aids, tactile diagrams, and maps.

**Extra Time Allowance:** students with visual impairments are slow in processing visual information and completing their written assignments because they take more time to read a text as compared to students with normal vision. Also reading and writing in Braille as well as getting information from tactile sources is time-consuming. Thus, they need much time to process auditory information. To accommodate such needs, extra time is required during examinations and when completing classwork.

The inclusion of students with visual impairment in higher education is a topic intensely deliberated in the literature from different points of view. Ishaq investigated inclusion from the view of the students with visual impairment and stated that a positive attitude from the students' teachers and sighted peers has contributed to facilitating their study course at higher education institutions [39]. While other studies [40–45] have put emphasis on several impediments that are confronted by learners with visual impairment including deficiency of self-advocacy among students themselves to explain their visual disability, the inability of students to negotiate support arrangements, limited and inaccessibility to information resources in university libraries and lack of specialized knowledge to accommodate the students' needs. Additionally, students reported finding difficulties to study some subjects such as music, foreign languages, and computer.

The reviewed literature has demonstrated the pros and cons of attending either specialized schools or schools with inclusive settings. Given that neither school system has an absolute advantage, important factors must be considered while deciding which educational setting is more beneficial. This factor may include the level of visual impairment. The educational needs of each student likewise need to be well-thought-out. Proficiency, that is, the knowledge already available to the student should determine the instructional setting, which may vary over time with each student's development and possible changes in vision. Accordingly, it is worthwhile to investigate the pros and cons of both settings according to the associated social and economic factors that, in some cases, might be exclusive to countries that share similarities in cultural and economic circumstances or geographical areas. For instance, the deficiency of expert teachers, governmental support, and community awareness pertaining to the special needs of the education of the visually impaired were mutual factors raised in some African countries within the geographical area, similar to the academic setting of this study. These factors might hinder their inclusion, as indicated by literature [46–50].

In the Republic of Sudan, the academic setting of this study, it is necessary to conduct research to investigate the uncertainty pertaining to the placement of the visually impaired in specialized schools or inclusive settings.

The school system in Sudan starts with eight years of compulsory basic (elementary) education, followed by three years of high school. Efforts to provide education to the visually impaired in the country began with the initiative of a non-governmental organization in 1961. As a result, Al-Nour School was opened as the first residential specialized school in the country offering elementary education in the capital city of Khartoum. Another two elementary schools were later added to the River Nile state in the north and Gadarif state in the east. The number of visually impaired children admitted to these schools every year does not exceed 40. The country does not have specialized schools at the high school level. Therefore, the only option for those who complete elementary education at specialized schools and desire to continue studying is to join schools that are designed for sighted students. As reported by Salih and Kakizawa, students often manage their education at regular schools by using cassette recorders or by being read to by their peers, friends, and family members [51]. They usually take oral tests or receive assistance from someone who writes for them. The only advantage that students who graduate from specialized schools have over their peers who graduate from regular schools is their ability to use Braille and other assistive devices as additional options to access written information.

Although the official placement for visually impaired students in Sudan has been residential segregated schools, many experts in the special education field are now questioning the efficacy and usefulness of this system. They argue that integrating such students at regular schools gives them the opportunity to socialize with their non-disabled peers and fosters mutual understanding within the student community. They also believe that students with visual disabilities are a small group among all other types of disabilities that can easily be integrated into public schools. Accordingly, tangible initiatives have recently been undertaken by the Ministry of Education towards promoting the inclusion of students with special needs in mainstream education [52]. One example is the step taken by the Khartoum District Education Authority in 2007 to include visually impaired students within mainstream education. However, many problems arose, forcing this initiative to be halted.

One of these problems was the lack of sufficient prior preparation, which created difficulties in getting this group of students to adapt to the new system. Instead, they felt deprived of equal opportunities to compete with their sighted peers. As a result, many students dropped out and returned to their original segregated schools to continue their education [52]. Alhaj attributed the failure of the inclusion process of students with special educational needs in Sudan to several reasons, including a lack of buildings with specific accommodation designs, a shortage of qualified staff, and the absence of social awareness regarding disabled people [53].

The debate on the best way to educate visually impaired students in Sudan remains under discussion among educational experts. Some stand firm with the option of specialized institutions, while others prefer to continue and strengthen the integration process. Thus, this study will examine the advantages and disadvantages of enrolling students with visual impairment in specialized schools in Sudan, in contrast to integrating them into regular schools besides the competencies of the teachers at the Sudanese General Basic School by raising the following questions:

- (1) Is it better to place visually impaired students in Sudan in specialized schools or integrate them into regular schools?
- (2) What are the advantages and disadvantages of each system?
- (3) What competencies should the teachers at the Sudanese General Basic School have in order to fulfill the requirements of an inclusive education setting?

The findings of this study are expected to provide information and guidance to decision-makers and to offer solid ideas and prospects about educating the visually impaired in Sudan and other countries with similar contexts. In addition to teachers at regular schools, government departments and educational institutions for the blind in Sudan are in desperate need of scientific information and good planning to help the process of education of visually impaired students to move forward. The findings of this study are also expected to aid the development of training programs, strategies, and feasible solutions for the challenges and obstructions facing the education of visually impaired students in Sudan.

#### *Purpose of the Study*

The purpose of this study was multifaceted. It aimed to understand and evaluate participants' views regarding the advantages and disadvantages of specialized schools in Sudan. It also intended to identify the competencies Sudanese mainstream basic schoolteachers should have to be able to fulfill the needs of their students who are visually impaired and to achieve the ultimate goal of the inclusive school system. Moreover, this study aimed to suggest concrete solutions that can help further the education of the visually impaired in Sudan and ensure it is in keeping with current times.

## **2. Materials and Methods**

### *2.1. Participants*

This study sought to solicit ideas to tackle issues pertinent to integrating students who are visually impaired in regular schools as opposed to separating them in specialized schools. Thus, the collected data ought to be more specific to the purposes of the study in order to obtain relevant results. Therefore, to make the most out of a small population, and to collect information from the best-fit participants, purposive sampling was chosen since it is deemed to be effective when limited numbers of people can serve as primary data sources due to the specific design of the study. Since there are a few national institutions that provide education and rehabilitation for the visually impaired in Sudan, the participant sample was limited to students and personnel who are affiliated with these institutions. Even regular schoolteachers and government staff who participated in this study were chosen from Khartoum, Aljazeera, and River Nile states because a noticeable initiative has recently been taken by the authorities in these states towards promoting the inclusion of the students with visual impairment in the mainstream. Accordingly, a group of 20 participants comprising of visually impaired students, their teachers, and associated staff agreed to participate in this study. The group included six students who graduated from specialized schools and later joined regular secondary high schools. Three visually impaired teachers working at the National School for the Blind and one sighted teacher at the National Rehabilitation Center for the Blind were also enrolled. The participants also included two students who had never had the opportunity to join specialized schools, four sighted teachers working at regular schools, two staff members with a visual impairment from the Aljazeera State Rehabilitation Center for the Blind in central Sudan, and one sighted official

from each of the provincial ministries of education in Aljazeera and River Nile states in northern Sudan.

## 2.2. Method

Semi-structured interviews were conducted to explore the perceptions and opinions of the participants. This method allows for the questions to be asked in sequential order but also offers space for the interviewer to generate new questions depending upon the participants' answers. It also allows interviewers to ask for elaboration and to get into an extended dialogue with the interviewees if needed. Unlike standardized interviews and focused or unstructured interview methods, this methodology has the advantage of permitting participants to answer questions on their own terms and provides a platform for comparability.

## 2.3. Procedure

Interview data had been collected from Feb 2020 to June 2020 and were conducted via Skype or phone at the participants' convenience. The average duration of each interview was 40 to 60 min. Each interview started with an explanation of the aims of the study, assuring confidentiality, and affirming that all audio recorded data will be used anonymously and only for the purpose of the present research. The study was conducted in accordance with the Declaration of Helsinki for studies involving humans and approved by the Institutional Review Board of The University of Tsukuba Faculty of Comprehensive Human Sciences approval Code: 28-38 Approval Date: 2016. In the preparatory stage for conducting the interviews for this research, and to enhance the validity of the data acquired, two teachers who have previously worked at the Elnour Institution for the Blind and one person who has worked as the education secretary at the Sudanese National Association for the Blind (SNAB) were consulted. This consultation considered the history, knowledge, and rich personal experience of those individuals in dealing with issues related to the education of the visually impaired people in Sudan. They all agreed that the questions should be designed in a way that allows the participants to clarify their perspectives and offer them the opportunity to express their views and suggestions accurately and adequately towards enhancing the provision of education for the visually impaired in Sudan.

Questions were asked according to the pre-determined sequential order of the interview, and respondents were given all the time they needed to provide full and detailed answers before moving on to the next question. The interview questions were as follows:

- (1) What experience does the participant have with specialized schools?
- (2) What is the participant's view of the characteristics, advantages, and disadvantages of specialized schools?
- (3) What necessary support does the participant believe is required to ensure the success of inclusive education within regular schools?
- (4) What are the challenges, advantages, and disadvantages of inclusive education in Sudan? What suggestions does the participant offer for the enhancement of education for the visually impaired in Sudan?

## 2.4. Data Analysis

The interviews were recorded, transcribed, and translated from Arabic to English by a third party to prevent bias and preconception during the analysis process. After transcribing all the interviews, the interview questions were analyzed by adapting the thematic analysis technique [54]. Based on the interview questions, the first author and colleague independently created an initial set of codes. Afterward, they met to discuss the similarities and differences in the created set of codes and agreed on a codebook. Then, the codebook was used by the first author and another colleague to code the interview data. Whenever appropriate, a frequency count was used to describe the number of responses in each category.

### 3. Results

The analysis revealed a notable variation in the participants' views between those who support the education of visually impaired students at specialized schools and those who support integrating them into regular schools. The first section of the interview required respondents to provide their views on the education of the visually impaired at specialized schools. The question about the participants' experiences with specialized schools drew a range of varied responses. The participants listed several advantages and disadvantages of specialized schools in response to Question 2. These responses are presented in Table 1.

**Table 1.** Advantages and Disadvantages of Specialized Schools for the Blind.

Advantages	Number of Responses	Disadvantages	Number of Responses
Provide a comprehensive social and academic environment	10	High cost of establishing and operating specialized schools	12
Allow parents to participate in the educational process	9	Living in a setting that differs from the outside world	7
Offer an environment to accommodate academic needs	8	Mismatch of mutual interest among the students	6
Conduct comprehensive assessment prior to schooling	7	Separation of children from their families at an early age	5
Have teachers who are patient, dedicated, and passionate	7	Deviate families' attention when children attend various schools	4
Offer after-school activities	5		

Based on the answers listed in Table 1, it is possible to derive five broad features related to specialized schools. The first is the comprehensive assessment that these schools conduct before students start their programs. One of the participants who was an official from El-Nour Institute for the blind summed up the assistance provided by the school to the students during the admission process as "categorizing their aspects of strength and weaknesses, assessing their ability to perform daily activities, investigating the history of disability in the family, evaluating disability condition, and identifying the activities performed by the child at home before joining the school". The school, according to the same official "checks whether treatment of the visual disability is possible, and if any other disability exists. If another disability becomes known during the assessment phase, the school evaluates its impact on the student's academic achievement and proposes an appropriate learning method for the student to access the school curriculum".

The second feature highlighted in the answers was the well-developed social and academic environment at specialized schools. In these schools, students start learning Braille, mathematics, and other subjects in their first year under the supervision of teachers who are experts in the field of educating the visually impaired. One participant, who was a visually impaired teacher, pointed out the regular tests given to students to assess their ability to absorb the contents of the teaching materials as well as their ability to accomplish the required academic tasks.

These evaluation tests are accurately and professionally conducted by visually impaired teachers who, based on their personal experience with disability, are better suited to evaluate the intellectual abilities of this group of students. One participant from this group of teachers affirmed that students could not move to the upper classes until they met the required academic criteria and passed annual exams. Those who fail are required to retake the same class.

The third feature highlighted through the answers was that specialized schools possess the proper infrastructure to accommodate students' private and academic needs, which may not be available at public schools. This is another benefit that students at specialized

schools enjoy. One participant who graduated from a specialized school confirmed that each child had a designated space to maintain their personal belongings, and the schedule and classroom rules were posted in a manner that the students could understand. The classroom setting is well-organized and divided into areas for different purposes, including entertainment and reading activities. Books and other reading and writing materials are displayed in a way that makes them attractive to children. Another student commented that materials for Braille writing are available, including Braille paper of various sizes for short and long messages, Braillewriters, staplers, and envelopes. A visually impaired teacher added that while sighted students enjoy a well-prepared setting for their reading and writing activities, students who are blind are also surrounded by Braille materials for their own classroom assignments. They are given many opportunities to exercise and develop their Braille reading and writing skills daily. A frequent activity is the exchange of Braille messages between the teacher and students in addition to assignments and homework lists, class schedules, and letters to read.

The fourth positive feature highlighted through the participants' answers was the presence of caring, patient, dedicated, and compassionate teachers at specialized schools. Most participants agreed that this was one of the most excellent features of these schools. As stated by a participant student, "The students feel comfortable with those teachers because, in addition to some of them being visually impaired themselves, they are also well acquainted with the assistive devices used by the students. They deal with the students based on the experience they have accumulated throughout their extended teaching career at specialized schools as well as their well-founded knowledge of students' educational needs". Another student stated, "Students go to their teacher's office at any time to ask for help with any of the assistive devices. Students also get help with their Braille writing homework or mathematical drills. Such assistance by highly competent teachers may not be available at regular schools". Another student commented that "teachers have the appropriate competence for dealing with their students. Daily work schedules and classroom assignments are made very clear to the students, and examinations are conducted for determining the criteria to be fulfilled for advancing to the next level of learning. In addition, school personnel are very attentive, so the school rules are meticulously followed by the students and there is a consequence when rules are broken".

The fifth feature was the specially designed after-school activities for students that may not be found at regular schools. A visually impaired teacher confirmed that academic activities are designed to tackle all aspects of the weaknesses and deficiencies that arise during the school day. These include problems with incorrect writing and reading Braille due to weak haptic senses that may have been caused by other disabilities accompanying blindness. This can also be a result of inadequate pre-school rehabilitation. Another visually impaired teacher stated that they constantly attempted to eliminate such weaknesses. Specialized schools also organize several after-school activities, such as sports, music, drama, and games, to allow students to enjoy a recreational setting similar to their sighted peers. The development of these skills at this age helps create a positive psychological atmosphere that boosts self-confidence and facilitates future inclusion in surrounding communities. Another visually impaired teacher emphasized the importance of these activities by saying, "These schools are designed to rehabilitate the students by making the best possible use of the remaining senses in order to compensate for the loss of vision. Therefore, such activities allow students to immerse themselves in normal life, such as moving alone and playing with their blind peers". In the case of students who live on campus, one teacher commented, "Schools substitute the families in monitoring, supervising, following, and directing the students while performing their daily life activities such as movement, eating, washing clothes, cleaning the room, sewing clothes, wearing shoes, and organizing their belongings".

However, the participants also listed several disadvantages of the specialized schools. One disadvantage that came up in most of the participants' answers was the high cost of establishing this type of school and the difficulty of allocating adequate financial resources

to keep them operating. One participant emphasized the high cost of operating these schools in Sudan, given that most of their needs and equipment were imported. He proposed, “NGOs should be solicited to support these schools”. What adds to the already high cost of these schools is their “presence in urban areas, and the need to follow a specific disabled-friendly design, including the construction materials and equipment that help the visually impaired to compensate for their vision loss. This is essential to their education. However, securing enough funds to provide educational facilities such as special tools, effective teaching systems, cassette recorders, audiobooks, and optical aid devices is beyond what the allocated budget for these schools can bear”.

### 3.1. Separation from Family at an Early Age

One of the disadvantages of specialized schools that was highlighted in the participants’ answers was the uncomfortable long-distance travel the students had to make to get to their schools. Those who choose to reside on campus were away from their families during weekdays. A participant who was an education official commented that “students who are enrolled in specialized schools generally have limited contact with their non-disabled peers, unlike those who are full-time public school attendees. The solution to this is gradual integration by allowing those who attend specialized schools to receive some instruction in local public schools”.

### 3.2. Losing Common Ground and Shared Interest with Age-Mates at Home

The participants’ responses acknowledged the importance of the home-setting in the growth of children in general, particularly those with disabilities. Students with visual impairment who are separated from home and go to live on campus for the larger part of the year face two problems, as one participant teacher mentioned. “They begin to lose all aspects of common grounds and shared interest that they used to have with their age-mates at home. They also begin to develop feelings of belonging to different communities”.

## 4. Current Inclusive Education System in Sudan

This section presents and analyzes participants’ views on the challenges, advantages, and disadvantages of the inclusive education system in Sudan. Table 2 summarizes the advantages and disadvantages of the current inclusive educational system in Sudan as reported by the participants.

**Table 2.** The Advantages and Disadvantages of the Current Inclusive Educational System for the Visually Impaired in Sudan.

Advantages	Number of Responses	Disadvantages	Number of Responses
Provides opportunities to include more students	18	Offers excessive care, but inadequate instruction in classes	14
Offers students the opportunity to interact with sighted peers	13	Denies students’ prospect to use assistive technologies	12
Allows students to grow within their families	11	System is implemented without adequate preparation	12
Offers students an opportunity to experience the real world	5	Offers no scientific academic assessment	9

### 4.1. Discussion of the Advantages of the Inclusive System

As the table above shows, growing up within a family setting is hailed by many participants as an advantage of the inclusive system. One student believed this system provides visually impaired students the opportunity to stay with their families since there is no boarding house option. Therefore, it helps to create deep family relations and stronger

bonds with their age-mates in the neighborhood. This will eventually lead to improvements in the way communities deal with the visually impaired.

This system also offers students the opportunity to interact with sighted peers, spend time with them, and participate in daily classroom activities. From a teacher's perspective, this helps them understand and learn from the behaviors of others and gives them the opportunity to develop principles of social interaction, independence, and self-advocacy skills. An official from the Department of Special Education believed that if education through integration is efficiently and properly implemented, it can compensate for the shortage of specialized schools in Sudan. It has the capacity to expand educational opportunities for a larger number of visually impaired people.

#### *4.2. Disadvantages of the Inclusive System*

A common view among interviewees was that the inclusive policy is being implemented without adequate preparation. A visually impaired teacher criticized the overall policies of enrolling students with visual disabilities in schools. He believed that most of these students ended up either outside the educational system due to limited seating at specialized schools or getting enrolled as listeners at public schools. Another critique came from a visually impaired teacher who believed that educational support and other services relating to disability must be designed based on what the expected recipients need, not what the system thinks they should receive. A student objected to labeling this system "inclusive" and proposed to call it "oral education" instead. His objection was based on the fact that visually impaired students usually attend regular schools as listeners. They are exempted from regular academic tasks, such as mathematical exercises and spelling tests, and are also given lighter oral tests at the end of the year. Another student commented on the practice of accepting students as listeners at public schools because they lacked the skills of reading and writing in Braille and were unable to use other assistive technologies to access the school curriculum. The reason behind the current form of education for the visually impaired in Sudan was further criticized by a regular schoolteacher who believed it is not based on solid scientific research and is not clearly defined within the national strategic educational plan. Rather, it is a compromise that families have accepted and adopted to educate their children. Another visually impaired teacher expressed a negative opinion about this system, rejecting it as a basis for educating the visually impaired in Sudan. The reason for this objection was that although the families knew it was not ideal, they agreed to adapt it for their children because of the limited number of specialized schools in the country. Such a situation does not fit the standards of either good or inclusive education. Another teacher believed that the system required rigorous and systematic evaluation and review to improve it and make it properly functioning.

One teacher with visual impairment believed that the inclusive system was an easy way out for officials at the special education department who do not want to tackle all the difficult and complicated problems that come with building a truly functioning educational system for the visually impaired. He further emphasized that such inaction produces a generation of students who do not have any knowledge of how to deal with assistive technology, which is vital for the progress of their education. It also deprives them of the opportunity to use their other senses, and consequently, limits their ability to comprehend class content.

The importance of assistive devices in boosting academic capabilities and learning progress was reiterated by another teacher with a visual impairment who stated that it helps the students to become qualified and competent when they graduate and will increase their chances to compete in the job market in the future. Allowing them to rely only on their listening sense is risky because, as another teacher who was visually impaired believed, it will lead them to think that it is the only learning technique available to acquire knowledge.

Several participants touched upon the excessive care students received at various public schools. One female student complained that her teacher was completely ignorant of how her visual impairment impacted her abilities. All that the teacher was able to offer

was asking her to lay down on the bed for the whole day every day. This resulted in the student hating her kindergarten. Another student was exempt from class assignments and sports activities, and another student was asked to stay in class when his classmates were performing activities directed at cleaning the school campus. The participants also lamented the insufficient opportunities for students to receive special instruction at regular schools. Another problem noted by the visually impaired teachers at regular schools was overcrowding in classes. With an average of 40 students in each class, it is difficult for students to become fully attentive and carefully follow up on their classes. Another problem was the delivery of the class instructions. Teachers usually write on the board but rarely read out loud what they write. The use of visual aids in teaching is advantageous only for sighted students. The practice differs in specialized schools, where the number of students in class is smaller and teachers have a better chance to administer individual diagnostic measures.

### 5. Suggestions for Enhancing the Education of the Visually Impaired in Sudan

The interview ended by asking participants to propose suggestions that would contribute to enhancing the education of the visually impaired in Sudan. These proposals are categorized as either urgent or long-term and are summarized in Table 3.

**Table 3.** Solutions for Enhancing the Education of the Visually Impaired in Sudan.

Urgent Solutions	Number of Responses	Long-Term Solutions	Number of Responses
Promote teacher training for an efficient inclusive education	16	Establish more special schools in the main cities	17
Enact unified regulations to include the visually impaired in public schools	15	Create organizations specialized in visually impaired education	16
Create a database for school-age students with visual impairment	14	Secure the necessary assistive technologies	15
Emphasize to families the importance of educating visually impaired children	9	Conduct conferences discussing the education of the visually impaired	14
Raise students to fittingly interact with their visually impaired peers	9	Work towards gradual integration	13
Promote the participation of the visually impaired in cultural activities	5	Involve experts to design strategies to implement inclusive education	11

#### 5.1. Urgent Solutions

One of the suggestions was to create a database of students with visual impairment. This came from four participant officials from Aljazeera and the River Nile states who criticized the lack of accurate statistical information about visually impaired students. They believed that providing a good-quality educational service requires the existence of a comprehensive database that shows the area of residence, age, level of disability, family's economic status, and any other relevant statistical information.

The second suggestion focused on the importance of enacting standardized laws and rules to regulate the process of integrating the visually impaired in public schools. The absence of such laws and rules is one of the main reasons for the ambiguity and disparity in dealing with these students in schools. The fact that schools do not follow a unified code in dealing with all matters relating to visually impaired students has resulted in imbalanced educational services at various schools. The student participants reflected on

their experiences at public schools and revealed a notably different array of attitudes and ways of treatment depending on the school they joined. One of them stated that it was a matter of pure luck. A visually impaired teacher believed that it should be upon the formal education authority in each state to provide brochures with guidelines and rules regarding the integration of the visually impaired into public schools. Making these documents available will be consistent with the state's policy regarding the education of the visually impaired in public schools. An example of a complicated situation that results from the absence of these policies and rules is the process of admission for students who graduate from the Elnour Institute into nearby schools. A visually impaired teacher mentioned that the schools' administrations often do not accept those students, and they must wait for a special arrangement between the institute and the Ministry of Education to facilitate their admission process.

A third suggestion focused on the importance of raising awareness regarding blindness among sighted students. In the view of the visually impaired teachers, awareness compensates for the lack of assistive technologies. In order to make real progress with regard to spreading awareness about blindness, there has been a suggestion of creating a section in the curriculum to teach non-disabled students how to deal with different types of disabilities in order to facilitate the inclusion of their peers with disabilities in public schools.

The fourth suggestion asserted the need to promote the participation of visually impaired students in cultural activities taking place in the schools. A visually impaired teacher strongly advocated this as it will encourage the students to develop strong relationships with their classmates and demonstrate their personal abilities and intellectual talents. An example of this was a participant student who became a regular contributor to school cultural festivals and developed good singing and music skills. According to him, he became a star in school with very strong and wide social networks that had a positive impact on his academic and personal life.

In the fifth suggestion, the participants highlighted the importance of organizing training programs for teachers regarding the implementation of inclusive education and how to deal with visually impaired students. The participants affirmed the value of training teachers in the field of special education and making it a part of their ongoing professional development. One teacher with visual impairment stated that when this training is provided, teachers will have no excuse to release themselves from responsibility when students with visual impairment join regular schools. This will be a vital step in avoiding the undeniable negative consequences of handling the academic and personal matters of those students without being professionally trained and prepared to do so.

### *5.2. Long-Term Solutions*

Interviewees agreed that inclusive education is extremely advantageous in providing more opportunities for a larger number of visually impaired students. It helps to maximize care and promotes the kind of education offered by specialized schools. However, the interviewees believed that the inclusive system would work best if the plan is implemented gradually. In fact, the idea of gradual integration of students with visual disabilities has been suggested by a teacher with visual impairment and was enthusiastically received, supported, and approved by the authority of education in Aljazeera. The idea proposes that the integration process should start in Grade 4 at one of the regular schools in the student's neighborhood. This process requires schools to be adequately prepared to guarantee proper accommodation for incoming students, including the required equipment for assistive technology. Teachers specializing in the education of the visually impaired need to be appointed to handle all the situations that schools may face during the integration process. In addition to teaching, supervising, and following up on the academic progress of the students, teachers will also need to carry out other duties that are essential for the education of this group of students, including preparing the study material in Braille, handling the examination in Braille, and keeping an eye on their scores and grades.

Another long-term solution included establishing partially specialized schools that adapt the gradual integration strategies proposed by the participants. These schools would be built in the capital city of each state in the country. These schools must offer education to visually impaired students during their first three years of school before moving to regular schools. This would notably cut down on the expenses of establishing comprehensive specialized schools. One educational supervisor from the Aljazeera state suggested that these schools can be accommodated within existing regular public schools or in any other unused public buildings.

Several participants emphasized the significance of involving teachers who were themselves visually impaired were working in the field of the education of the visually impaired for a long time, and thus, became experts in designing and implementing the strategies and future planning of an inclusive education policy. Currently, visually impaired teachers are not being consulted in this policy, as per a participant in this study. This viewpoint was further supported by another teacher with visual impairment, who was also surprised that many decisions relating to the education of the visually impaired are taken without any prior consultation. There was a consensus among the participants that the well-founded experience, expertise, and valuable knowledge of teachers and personnel who have been working for extended periods of time in the field of educating the visually impaired must be recognized and utilized to the maximum potential.

The participants stressed the utmost importance of securing equipment for assistive devices used to write in Braille, print Braille textbooks, and large textbooks. One student participant looked at schools' failure to provide assistive device equipment to the visually impaired while their sighted peers enjoy having all the educational resources they need as "an act of discrimination".

Other suggestions included setting up an organization to work specifically in the field of education of the visually impaired, in addition to organizing annual workshops and conferences to exchange ideas and present new research findings to enhance the quality of this field of education.

## 6. Discussion

The first two questions in the interview addressed the participants' experiences in specialized schools, in addition to soliciting their views regarding the characteristics, advantages, and disadvantages of these schools. As noted by the participants, the most prominent virtues of specialized schools when compared to regular schools are the steps that are carried out before the students' school programs begin. These steps aim to identify the specific personality and psychological factors that often accompany the growth of children with visual disabilities. These factors are often missed by teachers and families due to a lack of awareness and the scarcity of specialized counseling and early intervention centers that work to support and administer cases of blindness during the early years of childhood in Sudan.

The results of various studies have shown that skill tests and careful follow-up of children during their early years in specialized schools help identify any possible accompanying disabilities besides visual impairment [1,6,23,46,48].

The participants stated that students receive carefully prepared monthly and semi-annual exams and quizzes and are assigned several academic duties during the school year. This gives students the experience of a real competitive academic atmosphere similar to their counterparts in regular schools. When they attend regular schools, they are treated differently because of teachers' lack of knowledge regarding how to evaluate their academic progress. The teachers consider them as listeners only and, accordingly, give them random grades or the minimum pass grade to allow them to move to the next level. This deprives them of the right to be equally evaluated. This becomes a source of frustration for teachers who try to make the same class material equally accessible to everyone in the class, and to students with visual impairment who feel unable to fully participate in the learning process.

One of the disadvantages of specialized schools that came up repeatedly in the participants' answers was the high cost of building these schools in comparison to regular public schools. Establishing a specialized school requires a barrier-free building design, a dormitory for students and teachers, Braille printing services, assistive devices, and transportation for students, teachers, and other staff. The high expenses of establishing specialized schools for visually impaired students have been discussed intensively in other studies [55,56].

Participants were asked to compare the benefits of enrolling students in each of the two educational systems and to address the factors that impede the integration of students with visual impairment in regular schools. According to current educational regulations, students who do not attend specialized schools are commonly accepted in any nearby regular public school to receive education with sighted students. As stated before, these regular schools are not equipped with assistive devices or resource rooms that offer special educational services. These students depend on memorization and asking volunteers to help them read the study materials and write during quizzes and tests in order to access the school curriculum and class information [51]. The participants believed that the current inclusive educational system is a fait accompli solution for households and families given the limited number of specialized schools that provide education for the visually impaired. Families are left with no other options for educating their children. Salih and Kakizawa stated that this learning method will have severe negative consequences on the educational progress of visually impaired students, as they have no experience with Braille and other assistive technologies [51]. Moreover, this system does not have a true and scientific academic evaluation method and lacks any platform that schools and families can use to monitor students' academic achievement. This corresponds with Mushoriwa, who stated that inclusive education is being introduced before thorough studies on whether it is applicable to adapt inclusive education in a particular country [48]. Consequently, people with disabilities in general, and those who are visually impaired more specifically, have been left out of the discussion regarding how best to include them in schools.

One of the most common practices in the inclusion policy, as many participants pointed out, has been treating these students in regular schools with excessive care and sympathy. Under this umbrella, these groups of students are usually excluded from a range of extracurricular activities to spare them from unwarranted physical efforts. This practice shows an undisputed lack of awareness and inadequate knowledge of the proper way to handle their special educational needs. Studies have repeatedly shown that when such practices become the norm and no interventions are taken to correct them, the education of these students is jeopardized and will suffer negative consequences [15–17,20]. These studies have recommended that when students with visual impairment are enrolled in a mainstream school setting, a careful assessment of their academic and social needs must be performed to determine their viability to function at both the academic and social levels alongside their sighted peers [57]. This assessment will determine the basis of this group of students' participation in all academic and non-academic activities with their classmates. This participation is necessary for students to gain and develop social skills, self-confidence, and independence when it takes place within an appropriate educational program [58]. The teachers and instructors who work with these students must refrain from providing too much and unneeded assistance or imposing constant and close-proximity supervision so as to leave room for them to develop their own independent skills [57].

Another complaint was inadequate class instruction, which directly affects the academic acquaintances of these students. Classes with a small number of students in specialized schools make it easier to offer careful guidance and ideal class management [59]. On the other hand, packed classes at regular schools make it difficult for this group of students to follow class instructions. It is important to consider the factors that special education experts recognize to have an immense influence on creating an effective learning setting for the education of these students. These include, but are not limited to, consistency and quality of instructional style, curriculum, amount of instructional time, opportunities for

active learning, and classroom setting, in addition to a shortage of teaching aids, low-vision devices, textbooks, and modern assistive devices [60–62].

Special education experts emphasize the importance of offering carefully designed literacy classes in specialized schools. This task should be shouldered by highly qualified instructors with good knowledge of Braille and a deep awareness of how to teach reading and writing in order to ensure that the students finish the course with an adequate level of basic literacy skills [23]. This requires close follow-up of these students and making them fully aware of the educational tools that will help boost their literacy levels, such as Braille, visual aids, and other assistive technologies. In addition to aiding their academic potential, these skills are also important for them to easily adapt when they find themselves surrounded by sighted peers at schools, universities, or future workplaces [56]. Failing to secure assistive devices at regular schools will lead such students to be far behind in subjects such as mathematics and science [63]. Although most countries across the globe face problems in providing and securing assistive devices for people with special educational needs, Braille writing machines, or placing sign language interpreters at all corners, this is more challenging in low-income countries [64]. Urwick and Elliot also found that to tackle this problem, there is a consensus among special education experts and experts to make these services available at select schools [64]. This is a part of the support students expect to receive.

The participants in this study offered several short-term and long-term solutions to enhance education for the visually impaired in Sudan. They argued that short-term solutions need to be implemented sooner and prior to the initiation of integrating the visually impaired into public schools to lay the ground for a successful integration process.

One point that has been raised is the number of children with visual impairment in the country, which is reported not to be accurately documented and precise numbers are not known. The number of those currently enrolled in schools is, by no means, the complete number of those who are eligible for education. One proposed short-term solution is to conduct a meticulous survey to determine the exact number in each neighborhood. The decision to send this group of students to school lies with the family. However, some families choose to rear their children themselves and do not send them to school. Therefore, the total number is a matter of speculation. This is a common occurrence in many developing countries and Sudan is no exception (For example, [65–70]).

A number of participants in this study highlighted the problem of the absence of a unified code or standardized policy to handle all matters relating to the education of the visually impaired in public schools in Sudan. The current way of handling this situation, according to the participants, is a matter of personal preference for teachers and administrators at different public schools. Accordingly, the education and inclusion of the visually impaired continues to face many negative consequences. Some schools have taken the deficiency of regulations relating to the education of the visually impaired as an excuse to not take responsibility for such students and to deny them the right to enroll in their programs. As discussed by Baldo Mohamed, this is expected as a result of the lack of school staff with sufficient knowledge to handle these situations [52].

Another decisive factor to be considered in the process of admitting visually impaired students to an inclusive education program is to test their psychological maturity and social readiness to mingle with sighted students. This begins with raising awareness among sighted students on how to socialize with visually impaired classmates and ensure that they understand the basics of visual disability. It is a miscalculation, according to Celeste, to put visually impaired students in a classroom with sighted peers and to think that doing so is enough to make them full members of that setting [71]. It is crucial for support professionals, educators, and special education experts to remain vigilant and sensitive to all aspects of social challenges that students with visual impairment may encounter and address them head-on whenever they appear.

One of the proposals made by the participants emphasized the vitality of training classroom teachers. Visual impairment may be total or partial, and handling each of them

requires a certain level of know-how. If teachers have no previous experience in teaching this group of students, they will be unable to identify the necessary educational tools and policies that help them learn. Therefore, it is important for teachers to become acquainted with the personalities, strengths, abilities, and needs of their students and become sensitive to their individual needs and requirements. They need to know as precisely as possible the type of special devices their students use, the type of accommodations and modifications they require in the classroom, and any other additional skills they may need to learn and develop [2,55,72]. Hiring qualified and trained teachers is unquestionably the most important component in ensuring the success of the inclusive education policy; without it, this policy becomes completely dysfunctional regardless of how many equipment and resource rooms are made available.

This is similar to the case of many African countries such as Ghana, Cameroon and Kenya [60,62,73,74]. These studies have also emphasized the fact that a lack of teacher training and inexperience in handling situations involving visually impaired students is often used as an excuse to not grant them admission.

## 7. Conclusions

The success of inclusive education programs in Sudan requires effective legislation, a proper environment, and accessibility of assistive devices that meet the specifications and requirements for each degree of visual disability. The current integration policy is in desperate need of meticulous reform that must start with a comprehensive system evaluation and careful identification of deficiencies and disadvantages. Another key factor for the success of the integration policy is to improve the academic environment by appointing qualified staff and competent and professional teachers who, in addition to the national curriculum, can implement the extracurricular curriculum for the visually impaired.

Paying special attention to the short- and long-term solutions that have been suggested by this study after comprehensive evaluation might help take a step towards improving the academic environment in order to provide better educational services. The list of long-term solutions in Sudan includes securing the necessary assistive technologies, implementing a gradual integration policy for students with visual impairment at regular schools, and establishing specialized schools in each state capital in the country. It is also recommended that teachers with visual impairment, particularly those who are currently working in specialized schools, in addition to experts in the education of the visually impaired, be involved in planning and designing the implementation regulations of the inclusive education policy.

This study also recommends that a systematic review of policies pertaining to the education of the visually impaired should be implemented via annual conferences and workshops.

The conclusion of this study is that the implementation of both systems requires carefully calculated techniques, a range of logistic and technical requirements, intensive training, and sophisticated teaching skills to provide quality education to this group of students.

The decision to place a visually impaired student in one of the two educational systems is interchangeable, depending on the educational needs of the student. Students with visual impairments should not be compelled to continue a specific program if it becomes clear that it is unsuitable for them and does not fulfill their academic and personal needs. Even within a specific program, students' needs change from one level to another. They usually require intensive assistance and direct supervision during the early stages of their studies, but these requirements reduce in the upper stages. It might be ideal and preferable for one group of visually impaired students to start their education in specialized schools and finish at schools with integrated education programs. This arrangement may work in reverse for other groups of students. The solution lies in finding a combination of the two settings that allow for a variety of activities to be offered and a proper platform for students' social talents, psychological well-being, and academic skills to mature.

This study has two main limitations. The first one is the limited number of participants. Although the participants hold enough knowledge about the investigated topics, interviewing more participants can strengthen the generalization of the obtained results. The second limitation is the absence of views from the students' families regarding the education of their children with visual disabilities. This could be the focus of future research in this field. As the result of this study revealed a lack of awareness pertaining to the inclusion and educational needs of the students who are visually impaired, future work may also focus on investigating a larger number of teachers and students at regular schools about their knowledge regarding the inclusion and the special requirements of this group of students.

**Author Contributions:** Conceptualization, H.E.B.S. and T.K.; methodology, H.E.B.S.; validation, H.E.B.S. and T.K.; formal analysis, H.E.B.S.; investigation, H.E.B.S.; resources, H.E.B.S.; data curation, H.E.B.S.; writing—original draft preparation, H.E.B.S.; writing—review and editing, H.E.B.S.; visualization, T.K.; supervision, T.K. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data is kept privately according to the ethical and privacy regulations of the University of Tsukuba, Japan.

**Conflicts of Interest:** The authors declare no conflict of interest.

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