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Overcoming the Challenges of Including Learners with Visual Impairments Through Teacher Collaborations

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Abstract: In this article we report on a study undertaken with 255 teachers working with learners with visual impairments. The focus of our discussion is teachers' implementation of inclusive education policies with learners with visual impairments in full-service schools in South Africa. We foreground the ways in which the teacher participants relied on teacher collaborations to overcome some of the challenges they faced as a result of limited resource provisions in schools in this country. We implemented an instrumental case study design and followed the approach of participatory reflection and action (PRA). The sample included teachers (n = 255) from seven full-service and ten special schools from five provinces in South Africa. In addition, 50 expert stakeholders who work in the field of visual impairment were involved. For data generation and documentation, we utilised PRA-based workshops, the observation-as-context-of-interaction method, audio-visual techniques, field notes, and reflective journals. The findings of our research confirm that full-service schools face distinct challenges regarding limited resources as well as teachers that are inexperienced to accommodate learners with visual impairments. Even though the teachers in our study were initially reluctant to implement inclusive education practices, their collaboration with fellow teachers and other informed stakeholders enabled them to address some of the challenges they experienced and implement inclusive practices. They subsequently formed a team and learnt from one another to facilitate positive changes through the implementation of inclusive practices, thereby following a socio-ecological approach to inclusive practices in full-service schools in South Africa.

Keywords: full-service schools; inclusive education; special education; teacher collaboration; teacher support; visual impairment

Citation: Maesala, M.; Ronél, F. Overcoming the Challenges of Including Learners with Visual Impairments Through Teacher Collaborations. *Educ. Sci.* **2024**, *14*, 1217. https://doi.org/10.3390/educsci14111217

Academic Editor: Garry Hornby

Received: 31 August 2024
Revised: 31 October 2024
Accepted: 1 November 2024
Published: 4 November 2024

1. Introduction

The Salamanca Statement is generally taken to mark the beginning of inclusive education worldwide [1]. In this statement, a commitment was made towards education for all (EFA) that binds the 92 countries that accepted the statement to provide education to children with disabilities, to respect diversity, and to ensure that the needs of all learners are addressed, regardless of any form of disability or special educational needs [1]. In support of the Salamanca Statement, the Convention on the Rights of Persons with Disabilities recognises the rights of people with disabilities. This policy promotes the provision of equal opportunities for all for life-long learning within an inclusive education system at all levels, without any discrimination [2].

In support of inclusive education practices, the South African Education White Paper 6 for special needs education came into effect in 2001 [3]. This national policy provides people in the education sector with a framework for addressing special education and providing support services in education and training institutions. Although this policy came into effect almost two and a half decades ago, its implementation has not been easy in this country. To elaborate, in addition to the education system generally being rigid when it comes to transformation and becoming inclusive [4], teachers tend to focus on the national school curriculum and on completing its content within the stipulated

timeframe. Furthermore, many schools have been relying on summative rather than formative assessment practices [4]. Inclusive education requires teachers to support all learners holistically; therefore, teachers are expected to provide additional support to learners who experience barriers to learning—both in and outside the classroom.

Despite various efforts to ensure the effective implementation of inclusive education policies in all schools in South Africa, this goal has not been met [5]. Even though both pre- and in-service teachers have been equipped with the theory of inclusive education over recent years, they often regard themselves as not sufficiently skilled or knowledgeable to apply this theory in practice. In this regard, Mpu and Adu [6] posit that students are often equipped with a broad theoretical foundation in inclusive education policies yet seldom receive specialised training on how to deal with special education in practice. In addition to teachers' limited knowledge and skills, their attitudes and associated fears to implement these policies may also pose a challenge [7]. Therefore, although training workshops have been offered to teachers by the Department of Education since the release of Education White Paper 6 for special needs education in 2001 [3], the implementation of this policy remains a challenge [5].

The need for a more effective implementation of this policy can be understood against the reality of learners with specific disabilities in South Africa. To be more specific, at the time of the introduction of White Paper 6 for special needs education in 2001 [3], a mere 380 schools for learners with disabilities existed countrywide, with an enrolment of 64,603 learners. A large number of children were either left out of the education system or wrongly placed in mainstream schools, with their needs probably not being adequately met [3]. Of these schools, only 24 currently cater to learners with visual impairments, despite the fact that there are a total of approximately 159,200 such children of 0 to 19 years of age [8]. When the policy on inclusive education came into effect [3], about 10,252 South African teachers were employed at special schools [9]. According to the Department of Basic Education, the number of learners who experienced difficulties in seeing properly and who did not attend special schools until fifteen years later, in 2015, was 597,953 [10,11]. These statistics highlight the urgent need for increased access to publicly fund quality education for children with disabilities, specifically those with visual impairments.

As a result of White Paper 6 for special needs education [3], several mainstream schools in South Africa have been transformed to full-service schools (FSSs) since 2001. This was carried out to admit learners with learning difficulties and include them in the education system. A full-service school is defined as a school that can provide quality education to all learners and that has the capacity to accommodate a full range of "learning needs in an equitable manner" [12] (p. 7). In these schools, the individual needs of learners are addressed and the curriculum aided to ensure that necessary support is provided to both learners and teachers [12].

However, the question remains whether full-service schools do offer the support required and implement the White Paper's recommendations for the education of learners with disabilities [3]. It is imperative that teachers implement inclusive education policies despite their uncertainties and perceived lack of sufficient knowledge and skills. One way of addressing this challenge is to get teachers and supportive stakeholders to function within a collaborative system. In following such an approach, teachers may learn from and with fellow teachers to overcome their fears and challenges. The research we report on in this article explores the value of such collaborations and interactions among teachers of learners with visual impairments.

1.1. The Phenomenon of Visual Impairment

A visual impairment implies the loss of vision, with some people being totally blind and others partially sighted [13]. In an educational setting, a visual impairment indicates a learner's inability to use vision to participate optimally in educational activities [13]. Some learners may be born without or with limited vision, while others may become visually impaired as they grow older [14]. Three concepts that are often used simultaneously are

visual acuity, field of vision, and visual functioning. Visual acuity is the eye's ability to see details. The field of vision is the portion of space in which objects are visible at the same moment when looking in one direction [15]. Visual functioning entails the degree to which vision can be used for daily activities [15]. Given these descriptions, visual impairment is used as an umbrella term, indicating a decrease in the ability to see to a certain degree. Although such conditions can sometimes be corrected, they affect general functioning, learning, and development [15–17].

Partial sightedness implies a loss of vision to a certain extent, even with rectification [18], whereas low vision refers to a vision loss of between 20/704 and 20/160 degrees which cannot be corrected [19]. With low vision, learners can still use their remaining vision to learn with the assistance of other senses [20]. Legal blindness implies a loss of vision ranging from 20/200 to 20/400 degrees. This condition is considered as severe low vision [20] or profound visual impairment, which is close to total blindness, per definition implying the absence of any light perception [21]. Additional forms of visual impairment include refractive errors that refer to nearsightedness, farsightedness, astigmatism and a central loss of vision or a loss or obstruction of the visual field [19]. Next, generalised haze is a type of visual impairment that causes the sensation of a glare that may spread over the entire viewing field [22], while light sensitivity occurs when normal levels of radiance overpower the visual system, creating a washed-out image and/or glare disability [23]. Finally, even though colour vision deficiency is not classified as a type of visual impairment, this condition implies a difficulty in discriminating colours [18,24–26].

Children with visual impairments may show signs of such conditions at an early age, even as soon as shortly after birth. Common signs include a repeated "shutting or covering of one eye, sitting too close to the television or holding toys and books close to the face, frequent squinting, blinking, eye-rubbing, or face crunching, especially when there's no bright light present" [27] (p. 3). If not detected and attended to, an affected child may face an increased risk of limited exploration and will, as a result, have to rely more strongly on tactile and auditory abilities [28].

A visual impairment or a loss of vision can sometimes be corrected by medication, optical lenses, or surgery. According to the World Health Organisation, a visual impairment can be corrected when identified at an early stage, depending on its type and severity. The developmental domains associated with motor skills, language, cognition, and social functioning can detrimentally affect the development of a learner with visual impairment. Therefore, the accurate identification and assessment of a visual impairment is important, as such information can contribute to the educational support that is subsequently developed and provided to the learner [29].

1.2. Teaching Learners with Visual Impairments

When teaching learners with visual impairments, an adaptation of some of the learning materials, depending on the learners' specific conditions, is often required [30]. Teachers are, however, generally not trained to use such resources and assistive devices [31]. It follows that the implementation of inclusive education policies requires not only normal curriculum differentiation but also specialised training of teachers, enabling them to adjust their teaching strategies and accommodate these learners [3,32].

Many teachers do not hold the necessary knowledge and skills to cater to the specific needs of learners with visual impairments [33]. In addition to them not being sufficiently trained for this task, limited available space in schools for learners with learning difficulties remains a challenge in South Africa [3,34–37]. This may lead to teachers in full-service schools referring learners to special schools rather than accommodating them in special education classrooms situated at their schools. Research conducted with teachers at low-resourced schools in Tshwane, South Africa, indicates that teachers view the implementation of inclusive education as slowed down by factors such as the insufficient training of teachers, an inappropriate curriculum, and improper classroom structures [38]. In countries such as India, teachers' limited experience in working with children with disabilities is

similarly related to the shortage of qualified teachers and support staff members, such as teaching assistants [39].

Teachers sometimes perceive the implementation of inclusive education as additional work. In a study by Malak [40], teachers complained about the increased workload that learners with disabilities require. Teachers may also find it hard to effectively engage with learners with disabilities because of limited time and resources [32].

Learners with visual impairments can present with various challenges requiring accommodation in school. These include but are not limited to light and visual fatigue when attempting to interact with the environment and others [41] and learning how to move around safely in their environment when utilising their limited vision, if not yet blind. In addition, some learners may require using specialised assistive devices or may rely on braille for reading and writing [42]. Learners with visual impairments are often challenged by a limited attention span and may experience problems with their memory [43]. They may struggle with communication in terms of the recognition of items belonging to similar semantics, resulting in them possibly making comments that seem irrelevant in a specific context [28,44]. As learners with visual impairments are unable to view pictures and diagrams during teaching, these aspects need to be taught and communicated in ways that make sense to them and encourage their participation in the learning process [45].

The challenges experienced by learners with visual impairments can intensify teachers' perceptions that they are not knowledgeable and suitably skilled to teach them. As such, any teacher who practises inclusive education with a learner with a visual impairment will be required to overcome the challenges foregrounded in this article. Given the South African context and the need to implement inclusive education in full-service schools, teachers can be expected to rely on available resources to overcome challenges, rather than waiting for external intervention and support. Against this background, our research follows a participatory approach where collaborations between teacher participants and their peers as well as other informed stakeholders are encouraged. Such collaborations provide one possible avenue for teachers to overcome their fears and address some of the challenges associated with the inclusion of learners with visual impairments in full-service schools. As such, the teacher participants could rely on peers and other key informants in the education sector to be empowered to implement inclusive education.

1.3. Including Learners with Visual Impairments in Full-Service Schools

According to White Paper 6 for special needs education [3], inclusive or full-service schools are designated primary schools that are transformed, equipped, and supported to provide for the full range of learners' learning needs. The ultimate goal is to reflect inclusivity in their ethos, policies, staff, learners, and physical environment [3]. The core principle of inclusion rests on the goal of all schools becoming accessible for all learners despite their "background or circumstances, any learning barriers they may experience or special needs they may display" [29] (p. 4). To reach this goal, the implementation of inclusive education policies asks for a collaborative, preventative, and intervention-focused approach by all role players. The emphasis is on a holistic socio-ecological approach.

In South Africa, full-service or inclusive schools form part of the implementation strategy of inclusive education policies [3], based on inclusive education implying an enabling school system committed to addressing, embracing, and teaching learners with diverse needs effectively. It follows that inclusive education promotes schools where all learners with their unique styles of learning, race, culture, religion, and abilities are accommodated by all stakeholders involved.

1.4. The Reality of Resource Limitations in South African Schools

As it is the constitutional right of every child to access quality education, children with disabilities must be enrolled in schools where they are stimulated educationally. According to the Education Management Information System (EMIS) of the South African National Education Department, disparities do exist in providing these learners with quality

education [3]. Moreover, effective inclusion requires special resources and professional services that at this point in time remain a challenge [35].

To elaborate, the infrastructure and school buildings need to suit the needs of learners with disabilities [46], and a proper classroom lay-out, lighting of school grounds, and signage, amongst others, need to be in place. For practical support, learners require suitable Learning and Teaching Support Material (LTSM) and assistive devices to enhance their learning and support their participation in assessment tasks. In addition, these learners require human resources in the form of skilled teachers and qualified support personnel, such as teaching assistants, school nurses, occupational therapists, braille instructors, as well as orientation and mobility instructors [3,47].

Since many South African schools do not provide these resources, teachers are required to develop creative ways of implementing inclusive education for learners with visual impairments. In this article, we argue that teacher collaborations can solve some of the challenges related to the inclusive education of learners with visual impairments.

1.5. The Value of Teacher Collaborations

Teachers can gain from close collaborations with peers. They can learn from one another and support and guide one another. By forming part of a community of practice, teachers can participate in the social process of learning [48], due to reciprocal relationships forming the foundation of teachers who share successful practices. In applying this to the context of our research, we uphold the assumption that teachers who feel uncertain about the inclusive teaching of learners with visual impairments can make use of collaborations and peer support to overcome some of the challenges they face.

Despite the reality of resource limitations, teachers of learners with visual impairments are expected to provide quality education for all. By engaging with peers and other informed stakeholders more regularly, teachers may gain the necessary confidence to implement inclusive education with renewed dedication. Such interactions within systems may support the classroom experiences of learners with visual impairments.

2. Materials and Methods

The research we report on in this article forms part of a broader research project that aimed to conceptualise and develop a postgraduate qualification in Visual Impairment Studies. The purpose of this project was to provide an avenue for helping teachers implement inclusive education policies more effectively in South African schools. As part of this participatory research project, teachers and experts in the field of visual impairment collaborated to generate data that ultimately informed the development of this qualification.

We adopted an instrumental case study design [49]; thus, the generated data could reliably inform the content of the qualification that was developed. We were able to gain an understanding of how teachers perceive the implementation of inclusive education of learners with visual impairments, the related challenges they face, and how these can be overcome. For our study, we focused on the ways in which teacher collaborations can support the implementation of the inclusive education of learners with visual impairments [49,50], despite the challenges of limited school-based resources.

We followed the approach of participatory reflection and action (PRA) for its benefits in assisting researchers to better understand the circumstances of the participants within the context that they function in and experience certain challenges that require solutions [50]. Consequently, the participants were able to generate qualitative data, thereby integrating manifold realities, containing meaning that had been socially constructed in unique ways [51].

2.1. Selection of Participants and Research Sites

A nationwide invitation was distributed to the provincial Departments of Education, requesting the participation of schools in the respective provinces and requesting permission to proceed with arrangements. The first three provinces that responded and

granted permission were then visited for data generation in schools. Based on our view that additional data could benefit this study, permission to conduct research was obtained from two additional provinces. As such, provinces were sampled on a random yet voluntary basis [52]. Specific schools in the respective provinces were then purposefully identified. All teacher participants were selected purposefully [52].

The broader research project that our research forms part of entailed 17 schools in South Africa. Two hundred and fifty-five teachers of both full-service (n = 7 schools) and special (n = 10) schools as well as 50 expert stakeholders who worked in the field of visual impairment were involved as participants. The 17 schools are situated in five of the nine provinces of South Africa, namely, the Eastern Cape, the Free State, Gauteng, KwaZulu Natal, and Limpopo. All teachers at the schools that were identified as research sites were invited to participate; thus, no potential contributions were excluded.

2.2. Data Generation, Documentation, and Analysis

The techniques for data generation and documentation included PRA-based workshops, the observation-as-context-of-interaction method, semi-structured individual interviews, techniques in audio-visual data generation and documentation, field notes, and reflective journals. During the PRA-based workshops, the participants were able to express themselves, share ideas, and reflect on their own best practices when discussing solutions to the challenges they were experiencing. A total of 17 PRA-based workshops were facilitated with groups of teacher participants (approximately 4 to 6 participants in a group). The focus of the activities and discussions during these workshops fell on the experiences, needs, and expectations of teachers when teaching learners with visual impairments. The workshops also generated additional activities and discussions focusing on possible content to include in the postgraduate teacher qualification, which was the ultimate goal of the broader research project. During each PRA-based workshop, teachers brainstormed certain prompts in small groups and then presented their ideas to the larger group for further input and discussion. Following the data generation stage of this project, one member-checking session was conducted per province (five sessions in total), where teachers from the various schools convened at a central venue, thereby allowing them to engage and collaborate with teachers from other schools.

By utilising the observation-as-context-of-interaction method, we were able to familiarise ourselves with the context in which we conducted our research and with the human interactions that transpired among the participants. Participants were accordingly expected to participate actively in their social setting and not modify their behaviour due to the presence of the researchers who fulfilled the role of observers [53]. We conducted observations during all PRA-based workshops as well as during teaching and interactions with learners in class for the duration of one morning per school visit.

We furthermore conducted nine semi-structured interviews to generate data in discussion with experts who hold knowledge in the field of visual impairment [54] and as follow-up discussions with specific teacher participants to explore and clarify uncertainties that we identified during the PRA-based activities and discussions. The questions guiding the interviews focused on the participants' understanding of inclusive education and the teaching of learners with visual impairments, the challenges experienced or foreseen when teaching, and the ways in which such challenges can be overcome. Towards the end of the broader research project, the participants were requested to reflect on the value of their participation and collaborations with peers during the PRA-based workshops.

By including this method of qualitative data generation, we obtained information on the participants' opinions, beliefs, and practices in relation to the topic under study [54]. An overview of the interviewees is provided in Table 1.

Table 1. List of interviewees.

Interviewee	School/Institution	Occupation
I1	Department of Basic Education—district level	Counselling psychologist
I2	Department of Basic Education—district level	Learning support advisor for primary schools
I3	Department of Basic Education—district level	Learning support advisor for high schools
I4	Department of Basic Education—district level	Social worker in the inclusive education section
I5	School for the Blind and Partially Sighted	Grade 10–12 tourism teacher
I6	School for the Blind and Partially Sighted	Grade 10–12 Computer Application Technology teacher
I7	School for the Blind and Partially Sighted	Occupational therapist
I8	Full-service school	Grade 2 teacher of a learner with a visual impairment
I9	Full-service school	Member of the school-based support team

By including techniques in audio-visual data generation and documentation, we obtained relevant evidence in the research field [55]. Our sources of visual data included PRA matrices compiled by the small groups of participants during PRA-based workshops as well as photographs of these, while the audio data included voice recordings of the PRA presentations and the interviews we conducted. All these discussions and interviews were transcribed verbatim for the purposes of data analysis. Finally, we relied on field notes to document all occurrences, observations, and the discussions that took place [56] and on reflective journals to document our analytical and critical thinking about this study and what we encountered in the field [57].

An independent thematic inductive analysis [58] of the various data sources was conducted by four researchers on the project team, after which we compared our analyses and finalised the themes and subthemes that had been identified. Including various strategies for data generation and documentation as well as an independent analysis by various researchers supported us in obtaining trustworthy findings.

2.3. Ethical Considerations

Before conducting this research, permission was obtained from the national Department of Basic Education and the higher education institution where the broad research project took place (ethical clearance number: UP 17/06/01). Next, we obtained permission from the 17 participating schools and informed consent from all teachers and expert stakeholders who participated. In discussing the research project with the teacher participants, we explained to them that the ethics principles related to their voluntary participation, confidentiality, anonymity, trust, respect for privacy, and protection from harm as well as ethical report writing would be ensured [59].

3. Results

In this section we first report on the results that relate to the teacher participants' experiences of the challenges they faced in teaching learners with visual impairments in full-service schools. In addition, we present the results we obtained on the value of collaborations with peers as a possible way of addressing some of the challenges faced.

Thirdly, we focus on the results indicating the empowerment of teacher participants in implementing inclusive practices.

3.1. Resource-Related Challenges Experienced by Teachers

The teacher participants highlighted two primary groups of challenges that may hinder the successful implementation of inclusive practices of learners with visual impairments. These challenges centre on the lack of teaching skills among teachers to teach learners with visual impairments and on the lack of sufficient physical and material resources at a majority of schools, calling for collaborations with relevant stakeholders who can assist.

The participants underscored the fact that specialised resources are required when including a learner with a visual impairment. The participants emphasised the need for relevant Learning and Teaching Support Material (LTSM) when teaching these learners, stating that there is typically no LTSM in the classroom (PRA session 9, 6 March 2018) and emphasising that LTSM is required (PRA session 14, 15 March 2018). The teacher participants specifically referred to the lack of or insufficient learning and teaching material in braille, as well as the absence of computers and technological assistive devices at full-service schools. This need to use specialised resources implies the need for collaborations with others who may provide guidance and training in this regard. Figures 1 and 2 capture some of the challenges and needs identified by the participants.

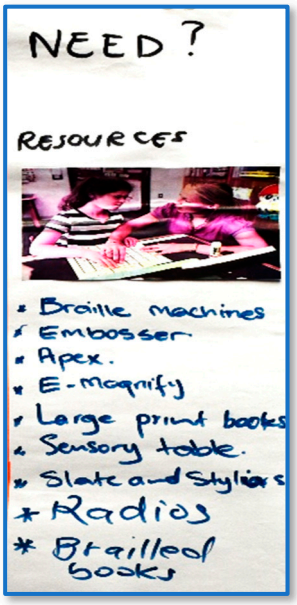

Figure 1. Resources required by teachers to teach learners with visual impairments.

Our research also foregrounds the result that many full-service schools with special education classrooms are not provided with learning materials such as braille or texts in an enlarged font when teaching learners with visual impairments. Moreover, these schools typically do not have resources such as sufficient braille writing machines, resulting in learners having to share machines or not having access to assistive technology at all. In addition, teachers are often not adequately trained to operate or work with these supportive resources; hence, collaborations with relevant trainers are deemed necessary. Another specific resource identified as being key when accommodating learners with visual impairments through inclusive education practices is embossing machines that could also assist teachers in adapting learning materials into braille. The teacher participants underscored the need for embossing machines (PRA session 4, 2 February 2018); braillers (PRA session 3, 29 January 2018); and braille industrial printers (PRA session 3, 29 January 2019), with the implied associated need for training on using these resources effectively.

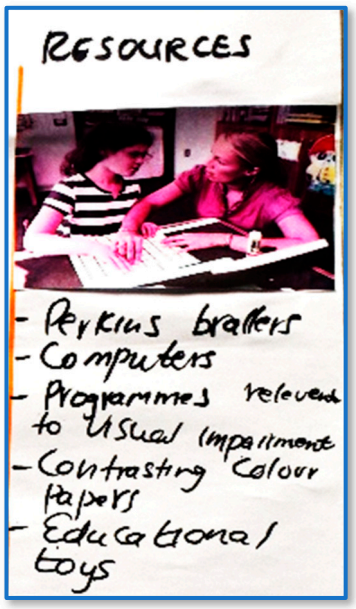

Figure 2. Resources required by teachers to teach learners with visual impairments.

The absence of physical resources (infrastructure) reportedly also posed a challenge to teachers to practise inclusive education with learners with visual impairments. The teacher participants referred to school buildings not being safe and accessible, to stairs and corridors not being well-lit, and to floor coverings not indicating different parts of the school. These challenges point to the importance of collaborations with stakeholders such as infrastructure departments, who may be able to assist. Other examples mentioned include some schools not having shaded areas for learners with photophobia to use during break times and schools not having separate areas for learners with visual impairments that are away from communal areas where rough games and ball games may be played.

Next, the teacher participants indicated the challenge of not possessing a comprehensive understanding of inclusive education policies. Closely related, several teachers found it hard to implement inclusive education policies in class and did not necessarily regard them as suitable for special schools. This emphasises the importance of the Department of Basic Education providing teachers with some level of training, thereby creating the opportunity for another level of collaboration. During an interview with a teacher at a special school, she, for example, mentioned that "... it's possible, but it's not easy especially with learners with visual impairment" (Interview 5, 7 February 2018). In further support of this, a teacher from another school indicated that it "... is easier to have the policy written in black and white but then in practice it becomes difficult for an educator to actually implement what was taught" (Interview 8, 20 February 2018).

Even though the teacher participants displayed some understanding of the underlying principles of inclusive education policies, they seemingly lacked a comprehensive view of what the policy entails in practice. They indicated the need for additional guidance to understand the policies and processes of implementation fully. In response to the PRA prompt related to the needs of teachers when working with learners with visual impairments, the participants referred to the need for special training in working with learners with visual impairments (PRA session 15, 12 April 2018) and in how to deal with these learners' needs, training in how to identify learners with visual impairments and in how to take care of them, and training in how to use resources relevant to the visual disability (PRA session 16, 16 April 2018).

Closely related, the teacher participants voiced the need for knowledge and skills concerning the use of supportive resources, screening procedures, and suitable teaching strategies when working with learners with visual impairments. The participants realised their need for specialised knowledge and skills due to them not having received any

focused training in this field. They indicated that educators should be trained to deal with learners that have multiple disabilities (PRA session 4, 2 February 2018), referring to specific examples of areas where they required guidance such as discipline strategies (PRA session 7, 14 February 2018) and discipline skills (PRA session 2, 25 October 2017).

In addition to the need for guidance on aspects such as classroom management, the participating teachers needed guidance on teaching strategies that are suitable for learners with visual impairments (PRA session 17, 17 April 2018). Our observation of a Mathematics class confirmed this need, as the teacher found it hard to explain fractions to blind learners. Other participants reported similar challenges when having to explain topics in tourism, geographical maps, and mathematical concepts, with one participant saying that "In tourism, some of the challenges have especially to do with the material we need, tangible things such as your map, it becomes a challenge, you can see the map that I'm having here on the wall is difficult for the blind learner, I'm speaking of Brazil they won't know where Brazil is so it really is a challenge" (Interview 5, 7 February 2018). Closely related, the teachers mentioned some difficulty when having to explain things like colour to learners who are blind.

The fact that many teachers had not been trained in braille was voiced as a distinct challenge when teaching learners with visual impairments. The participants indicated the need to know how to use braillers and specialised resources such as Apex computers and talking calculators when teaching these learners. They needed to be trained on how to use technological assistive products (PRA session 17, 17 April 2018). Some participants mentioned the importance of using concrete objects or materials of a tactile nature during classroom teaching, indicating that such tactile resources could assist them in implementing inclusive education.

Finally, the teacher participants indicated the need for guidance on how to facilitate referral pathways for learners requiring special education (PRA session 1, 24 October 2018). In establishing suitable referral pathways, the teacher participants needed to know which specialist to contact in which case and what such a referral procedure would entail. Closely related, the participants reportedly required guidance on how to identify a learner with a visual impairment in class before referring such a learner to a relevant specialist for additional support. A teacher explained this need by saying that "DOE should capacitate us with SIAS Policy in order to be able to screen, identify, assess and support learners" (PRA session 11, 7 March 2018).

3.2. Learning from and with Peers to Address Some of the Identified Challenges

The teacher participants indicated that they had benefitted from collaborating with and engaging in discussions with fellow teachers at other schools. The networking that took place seemingly encouraged interactions, lively discussions, and the sharing of valuable ideas on the inclusion of learners with visual impairments. During the PRA-based workshops, the teacher participants shared ideas and identified priorities that they, as a group, viewed as important. Participants, for example, mentioned that they could take it upon themselves to invite professionals to assess learners (PRA session 15, 12 April 2018), thereby emphasising the importance of relying on others and on established partnerships in the field. They shared ideas on possible people to involve as advisors or resources to rely on, based on their experience in joint efforts and collective expertise in supporting these learners in the past. One of the teacher participants, for example, suggested that teachers could request the Department of Education to employ braille instructors (PRA session 16, 16 April 2018).

The participants seemingly realised the value of working together when wanting to achieve the common goal of supporting learners with visual impairments. They recognised that collaborations are important and can lead to positive results, building on the relationships they had established as part of the participatory research project. They indicated that they would continue with and build on these relationships, believing that "... working together was like a building block, building on others' ideas" (member checking, 27

September 2018). As a result of this collaboration, the teacher participants mentioned that "the way in which learners with visual impairment are treated will improve at our schools" (member checking, 9 June 2018), due to the possibility of improved practices and of the participants facilitating positive changes in their own contexts as a result of collaborative discussions with teachers at their own and other schools.

The teacher participants valued their experience of learning from one another as a result of their participation in the PRA process and the collaborative discussions they engaged in. They viewed this experience as "collaborative teamwork, recognising and sharing ideas while learning from one another" (member checking, 6 June 2018). In essence, the participants related the value of learning from and with one another to the useful partnerships they formed and the teamwork they engaged in during the participatory research process. They indicated that the teamwork they participated in assisted them in gaining more knowledge and learning from fellow teachers and other informed colleagues who worked in different contexts but still in the field of visual impairment. They could share and gain knowledge and expertise, as captured in Figures 3 and 4.

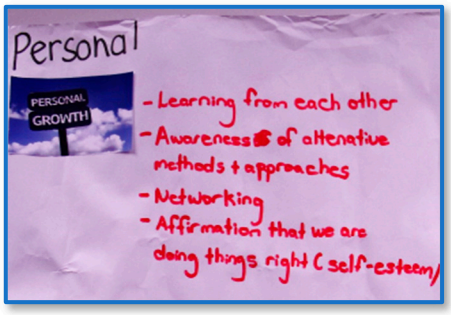

Figure 3. Participants learning from one another.

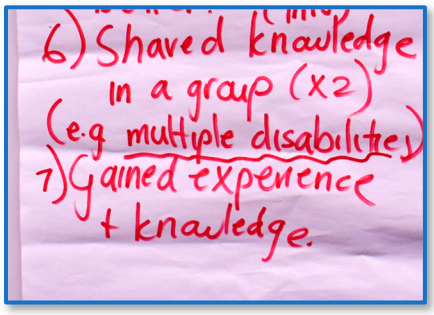

Figure 4. Gaining knowledge and skills from one another.

Some participants viewed this communal experience as a "way of forming a community of support with other teachers" (member checking, 27 September 2018). In this regard, the PRA-based activities allegedly allowed them with a space where "... shared experiences have created a community of support for educators of learners with visual impairment" (member checking, 27 September 2018). By being a part of this community of support, they were able to increase both their knowledge and practical skills on working with learners with visual impairments while also sharing their ideas with others. They stated that they acquired skills to improvise hand-made tactile materials as well as other accommodative materials (PRA session 15, 12 April 2018) that could support inclusive practices with learners with visual impairments.

According to the teacher participants, their involvement in the PRA-based activities "improved their learning and teaching methods" (member checking, 21 July 2018), even though they acknowledged that there was still room for improvement. They indicated that they gradually gained better classroom management skills by being involved in the project, as the following comments allude to: "Improve classroom management" (member

checking, 21 July 2018), and "... expanding knowledge of classroom management and teaching methodology" (member checking, 09 June 2018). In addition, they referred to improved interactions amongst teachers as a result of their participation in this research project and reported that they specifically gained insights into the manners in which they could "view, interact with and teach learners with disabilities, particularly those with visual impairment" (member checking, 9 June 2018). The participants furthermore indicated that the PRA-based discussions awakened in them the "need for seeking relevant ways of helping learners" (member checking, 9 June 2018).

3.3. Feeling Empowered in Forming Part of Positive Change

Collaborating with and learning from one another had a positive effect on learners with visual impairments. For the teacher participants, their newly acquired knowledge and skills could benefit their teaching methods when working in the field of visual impairment as part of a team. One of the teacher participants explained this in the following way: "Learners with visual impairment have a unique educational need which is mostly effectively met by using a team approach of educators, parents, and the district officials" (Interview 9, 20 February 2018).

The teachers who participated seemingly realised that they possessed certain resources, both within and external to themselves, that could be relied on to support learners with visual impairments. As a result of the participatory research process, they became aware of the fact that they themselves could offer something when working with these learners. They specifically noted that "the PRA sessions helped in confirming that policies and systems were in place" (member checking, 28 July 2018).

The teacher participants reported on becoming more motivated as the research progressed. They seemingly "became more empowered and capacitated, resulting in improved feelings of self-worth" (member checking, 27 September 2018). As this study progressed and the teacher participants gained confidence in working with learners in the inclusive context, these positive feelings were strengthened, with the participants reportedly experiencing a "boosted self-esteem and confidence" (member checking, 9 June 2018). As a result, the teacher participants from full-service schools indicated that they felt more able to teach learners with visual impairments after learning about suitable skills from their colleagues at special schools. Subsequently, they were apparently encouraged to do more in their schools and classrooms in terms of implementing inclusive education and accommodating learners with visual impairments, as captured in Figure 5.

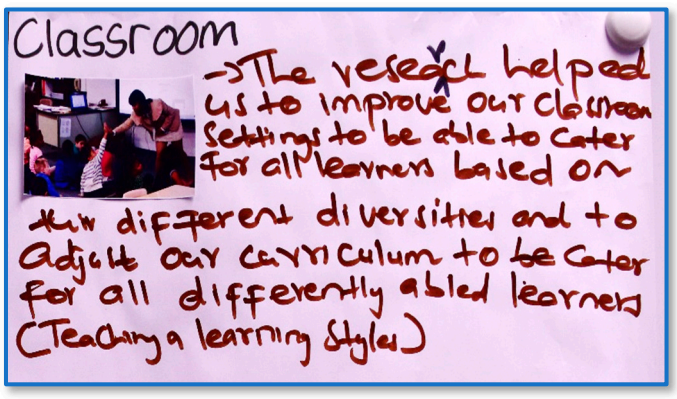

Figure 5. Teachers feeling encouraged to implement inclusive education.

4. Discussion

To support learners with visual impairments effectively in full-service schools, teachers require specific physical and material resources, such as Learning and Teaching Support Material, assistive devices, and specialised equipment. Braille machines and printers, braille textbooks and question papers, walking sticks, and magnifying glasses are some of the

resources required by learners with visual impairments to function and perform optimally. This implies that schools need to collaborate with stakeholders that can sponsor or provide such resources. Certain adjustments and resources are, furthermore, required regarding the school environment, such as school grounds preferably being flat, sufficient space to move around in classrooms and on the school grounds, and signage in visible colours. Most schools in South Africa, however, do not yet possess the necessary resources to meet all these needs and successfully include and support learners with visual impairments [34–38,47], highlighting the need for more active collaborations with various departments that can assist in addressing this challenge.

In addition to the physical and material resources required to include and support learners with visual impairments, teachers often face the challenge of not knowing how to practise inclusion. In line with the existing literature [31–34], the findings of our research confirm that teachers who are expected to implement inclusive education more often than not perceive themselves as not sufficiently skilled to fulfil this responsibility, even more so in the case of learners with visual impairments, who require specialised knowledge and skills to support their optimal performance and functioning. Amongst other aspects, the teachers in our study referred to the need for deeper knowledge on the implementation of inclusive education policies and, in terms of learners with visual impairments, for guidance on suitable teaching and learning strategies, assessment procedures, curriculum differentiation, supportive resources, classroom management, screening procedures, and referral pathways. They, furthermore, indicated the need for support and assistance by departmental officials in fulfilling this responsibility. Even though some of the teachers who participated held qualifications in inclusive education and special education, they perceived these qualifications as not sufficient in preparing them to practically support learners with visual impairments.

As a result of the challenges stemming from limited resource provisions in full-service schools in South Africa, it can be expected that teachers may be reluctant to implement inclusive practices, especially in the case of learners with specific disabilities such as visual impairments. However, the reality of South Africa implies that the prevailing need for additional resources in all schools will not be easily met, requiring teachers at the ground level to develop alternative ways of addressing and working around the challenges they face in support of the implementation of inclusive education policies. To this end, the findings of our study offer a possible avenue for teachers to reach this goal through collaborations with peers and other informed stakeholders.

As part of their participation in this research project, the teachers engaged in discussions and collaborations with peers. These teacher collaborations enabled the participants to address some of the identified challenges related to limited resources when wanting to implement inclusive education practices. We found that the participants gained knowledge and skills in conversation with others, with this equipping them to implement inclusive education practices more confidently. In addition, the teachers gained ideas for suitable teaching and learning strategies, assessment procedures, classroom management, supportive materials and hand-made resources, and the accommodation of learners with visual impairments in the classroom.

The teachers in our study were, as a result, able to address some of the needs they experienced related to the implementation of inclusive education practices with learners with visual impairments. Through teacher collaborations, they started recognising their own value and became motivated to empower themselves and implement the strategies shared during the discussions that formed part of our research. The teachers realised that they belonged to a so-called community of support, that they possessed strengths and resources that can be relied on, and that they functioned as part of a system consisting of several role players that can provide support. Even though they were not able to address the challenges of limited physical and material resources, they gained some ideas for the organisation and structuring of classrooms and school premises.

It follows that the participants' involvement in the PRA-based research process apparently confirmed their abilities and the contributions of all teachers involved. In addition, it reinforced the teachers' commitment to hone their skills and the support they offered to learners in their classes. This, in turn, facilitated the development of these teachers—both at a personal and a professional level.

5. Conclusions

Despite the teachers in our study initially indicating that they were not able to implement inclusive education with learners with visual impairments, they were able to address some of the challenges as a result of the teacher collaborations they engaged in as part of our research. They formed part of a team where teachers could learn from one another and relied on themselves, their peers, and other informed stakeholders to facilitate positive changes through the implementation of inclusive practices. Elevated levels of motivation to contribute to positive changes resulted in the teachers' increased levels of self-worth, a better self-esteem, and more confidence to teach learners with visual impairments by relying on the resources available within the systems where they function. These findings highlight the value of following a socio-ecological approach to implementing inclusive practices in full-service schools in South Africa, despite the remaining challenge of insufficient available physical and material resources in most of these schools.

Author Contributions: Conceptualization, M.M. and F.R.; methodology, M.M. and F.R.; validation, M.M.; formal analysis, M.M. and F.R.; investigation, M.M. and F.R.; data curation, F.R.; writing—original draft preparation, M.M.; writing—review and editing, F.R.; supervision, F.R.; project administration, M.M. and F.R.; funding acquisition, F.R. All authors have read and agreed to the published version of the manuscript.

Funding: The research project formed part of the Teaching and Learning Development Capacity Improvement Programme which has been funded and implemented through a partnership between the South African Department of Higher Education and Training (DHET) and the European Union (EU). Project identifier: TLDCIP—Visual Impairment Studies.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Data supporting the reported results can be obtained from the corresponding author, ronel.ferreira@up.ac.za.

Acknowledgments: Co-researchers and field workers: Maximus Sefotho, Marieta Malan and Refilwe Modisi.

Conflicts of Interest: The authors declare no conflicts of interest.

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