






The McKinsey's 7-S model framework for assessment of challenges faced by teachers of children with autism spectrum disorders in the Limpopo province, South Africa



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Background: The number of children with autism spectrum disorder (ASD) is rapidly increasing globally and requires a supportive educational system to meet the needs of these children.

Aim: The study assessed challenges faced by teachers of children with ASD in the public special schools of the Limpopo province, South Africa.

Setting: The study was conducted in seven public special schools in the Limpopo province, South Africa.

Methods: Face-to-face semistructured interviews were conducted with 12 teachers regarding the challenges they face in educating children with ASD. Tesch's inductive, descriptive open coding technique enabled the researcher to analyse and report, subthemes that emerged from this qualitative explorative and descriptive data. Measures to ensure trustworthiness and ethical considerations were carried out throughout the study.

Results: Analysis of the interviews revealed that the structure and systems of special schools do not support the educational needs of children with ASD. The strategic plans and policy framework on inclusive education are not being executed adequately. Learning for ASD children is not supported because of substandard infrastructure, curricula, lack of teaching material, health practitioners, unbalanced teacher-learner ratio, inadequate staff skills, school culture, shared beliefs and lack of management support.

Conclusion: The study revealed challenges faced by special education teachers indicating the influence on the provision of high-quality education to children with ASD. The Department of Basic Education at the national level should monitor all special schools regularly, provide the necessary support and ensure that the complex needs of children with ASD are met.

Contribution: The study contributes to understanding of the challenges faced by teachers of children with ASD in providing high quality of education and affirm sound basis of advance information to monitor and evaluate the education of children with ASD in special public schools, which is within the scope of the journal.

Keywords: challenges; children; teachers; autism spectrum disorders; McKinsey's 7-S.

Introduction

Autism spectrum disorders (ASDs) are a phenotypically varied group of neurodevelopmental syndromes defined by a wide range of deficits in social, communication and restricted and repetitive behaviour, according to Sadock, Sadock and Ruiz (2015). The number of children with ASD is rapidly increasing, and there is a struggle within the educational system to meet the needs of these children (Murray 2015). The special feature of teaching children with special needs is the need to consider their needs and abilities.

The healthcare needs of people with autism are complex and require a range of integrated services that include health promotion, care and rehabilitation (WHO 2021). An integral part of the process of teaching students with autism is the provision of communication, the development of social skills and academic (traditional) training (Andrunyk, Shestakevych & Pasichnyk 2018).

Learners with ASD need additional support to maximise their learning. Studies indicate that support is not always in place to ensure that the needs of autistic students are being met appropriately (Murray 2015). These students may not convey when they do not understand a concept nor ask for assistance when it is needed because of the difficulty in communicating with others. This may also lead to behavioural challenges and a lack of interest in educational content. As a result, teachers who work with children with ASD need to learn how to read a student's nonverbal cues, predict problem situations and develop a communication system to increase knowledge and understanding (Brown & Stanton-Chapman 2015).

Furthermore:

The possible behavioural symptoms of ASD include disturbances in language development, language usage, intellectual handicap, irritability, mood swings, affect instability, response to sensory stimuli, hyperactivity and inattention, precocious skills, sleeplessness (WHO 2021), and mild infections and gastrointestinal issues. (Sadock et al. 2015:1157)

As a result, learners with ASD demand an organised, predictable schedule and environment, as well as individualised teaching methods (Edward 2015; Uys & Middleton 2014; Weber 2013).

All teachers in regular and specialised classes should have experience with and understand the disorder to work with learners, because the schooling of children with ASD takes place in different contexts (Ruble, Usher & McGrew 2011; Weber 2013). In addition, teachers and their educational assistants who work with students with autism observed that the provision of more resources about ASD would be extremely valuable (Timmons, Breitenbach & MacIsaac 2006).

Previous studies discovered that teachers experienced various challenges when teaching children with ASD, both in regular and specialised classes. These include understanding and managing behaviour; school policy, lack of training or resources; and lack of understanding from other teachers, students and parents (Lindsay et al. 2013).

Aggressive behaviour is the most difficult for teachers to manage as it is associated with high levels of stress (Nistor & Chilin 2013). The level of stress for teachers working with children with ASD is positively correlated with emotional exhaustion and depersonalisation and is negatively associated with a sense of personal accomplishment (Ruble et al. 2011).

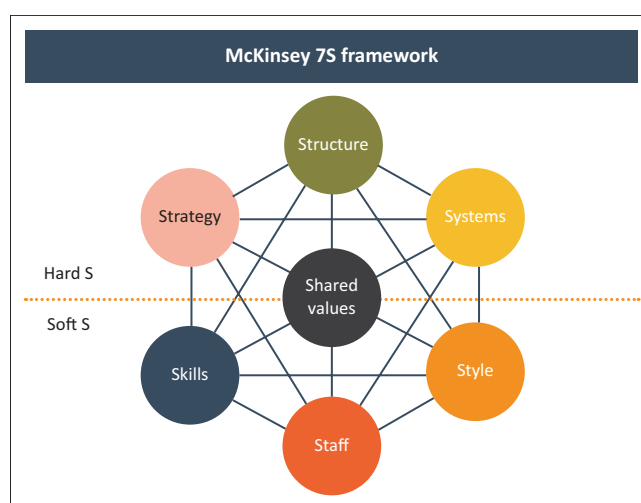
Emotional exhaustion was negatively associated with support from management. Educating children with ASD probably presents teachers with some of the most significant instructional challenges because of impaired communication (Berry & Gravelle 2013; Ruble et al. 2011). Poor preservice training, lack of seminars, limited time, lack of relevant teaching and learning materials and lack of cooperation between parents are perceived to be major challenges when it comes to teaching children with ASD in regular classes (Weber 2013).

In this study, the focus is on the challenges facing special education teachers of children with ASD in the special schools. Challenges were assessed based on McKinsey's 7-S model framework, developed by Peters and Waterman around the 1980s. These models are believed to have a high capability to provide a comprehensive view of any organisation (Alshaher 2013). These include a constellation of seven interacting factors that are key to helping people function effectively together to achieve a high-performance organisation (Alam 2017). The 7-Ss comprise three hard Ss (strategy, structure and systems) and four soft Ss (shared values, skills, staff and style) (see Figure 1). 'Hard' elements are easier to define and identify. The management can directly influence them. 'Soft' elements, on the other hand, can be more difficult to describe, as they are less tangible and more influenced by culture (Peters & Waterman 2011). Figure 1 depicts the interdependency of the elements and indicates how a change in one affects all the others.

The definition of the model elements is explained as follows:

- *Strategy* is a plan of actions intended to attain a long-term or overall goal.
- *Structure* means the way an organisation is organised, that is the way in which the organisation's units relate to each other.
- *Systems* include the procedures, processes and routines that characterise how the work should be carried out.
- *Shared values* or *superordinate goals* refer to the central belief and attitude of an organisation.
- *Staff* refers to the number and type of personnel within the organisation.
- *Style* is how key managers behave in achieving the organisation's goals.
- *Skills* are the actual skills and competencies of the employees (Pascale & Athos 1981).

The key point of the model is that all the seven areas are interconnected, and a change in one area requires a change in the rest of the elements for it to function effectively. The



Source: Chmielewska, M., Stokwizewski, J., Markowska, J. & Hermanowski, T., 2022, 'Evaluating Organizational Performance of Public Hospitals using the McKinsey 7-S Framework', *BMC health services research* 22(1), 1–12.

FIGURE 1: McKinsey's 7-S framework.

researcher used the framework to examine the likely effects of future changes in the special schools of the Limpopo province.

Studies about teachers' challenges in teaching ASD learners in mainstream or special schools or inclusive education have been published (Faiz, Arif & Zia 2019; Udoba 2014). However, in the Limpopo province, South Africa, there is limited data on the challenges and needs of special education teachers for children with ASD. As a result, the researchers who designed the study assessed challenges faced by teachers of children with ASD in the public special schools of the Limpopo province, South Africa.

Research methods and design

Study design

This study adopted a qualitative, explorative and descriptive design by allowing special education teachers to describe their day-to-day experiences regarding the challenges and needs faced when teaching ASD children.

Setting

The study was carried out in seven public special schools: three in Capricorn, two in Waterberg, one in Mopani and one in Sekhukhune districts. The Limpopo province has 33 public special schools, but none of them is for autism. The Limpopo province is one of the poorest regions in South Africa, with an estimated population of 5405 million. The population of the Limpopo province consists of several ethnic groups distinguished by culture, language and race; 97.3% of the population is black.

Study population and sampling strategy

Twelve special education teachers from seven public special schools were chosen using a nonprobability, purposive criterion sampling technique. All special education teachers who teach a specialised class for children diagnosed with ASD, as well as those who have expertise teaching ASD children in a multidisability class, were included in the study.

The school principals organised teachers on a set date for researchers to inform them regarding the study and invite

them to participate. Table 1 summarises the characteristics of the participants.

Data collection

Face-to-face semistructured interviews conducted with central and follow-up questions helped the researcher to define the areas to be explored. This also allowed the researcher or participants to diverge to pursue an idea or response in more detail. Interviews were conducted in areas free from distractions in class at public special schools after school. Before the semistructured interviews were conducted, the researcher informed the participants that the audio recording equipment would be used. Data were collected in English. Field notes about observations, thoughts and ideas about the interview were taken during and immediately after each interview, to help in the data analysis process. Data were collected until saturation was reached.

Data analysis

Eight steps of Tesch's (cited in Creswell 2014) inductive, descriptive open-coding technique were used to analyse data. Data were also given to an independent coder, who used Tesch's open-coding approach for qualitative data analysis in eight steps, as cited by Creswell (2014). The researcher and the independent coder met for a consensus meeting to discuss and agree on final themes and subthemes based on the topics that emerged when the data were separately analysed.

Ethical considerations

Ethical clearance was obtained from Turfloop Research Ethics Committee at the University of Limpopo (reference number TREC/232/2016: PG), and permission to collect data was obtained from the Department of Basic Education (DBE), the Limpopo province and from the principals of the selected special schools. Important ethical concerns that were considered were confidentiality and anonymity, informed consent, the principle of no harm and justice. Before the interviews, participants were informed about the nature of the study and their potential role, the types of questions that were likely to be asked, the method of anonymity and how

TABLE 1: Participants' demographic data.

Participant no.	Special school unique codes	District	Gender	Age	Experience of teaching ASD children	Number of ASD in class	Type of a class
1	NH	Capricorn	Female	50–64	> 10 years	11	ASD class (junior)
2	NH	Capricorn	Female	50–64	> 10 years	12	ASD class (senior)
3	TS	Waterberg	Female	30–49	0–2	08	ASD class (junior)
4	TS	Waterberg	Female	50–64	> 10 years	3	Multidisability
5	GH	Capricorn	Female	50–64	> 10 years	5	Multidisability
6	GH	Capricorn	Female	30–49	5–10	2	Multidisability
7	EP	Sekhukhune	Female	30–49	5–10	3	Multidisability
8	BH	Capricorn	Female	50–64	> 10 years	5	Multidisability
9	BH	Capricorn	Female	50–64	> 10 years	6	Multidisability
10	PF	Mopani	Female	30–49	5–10	5	Multidisability
11	PF	Mopani	Female	30–49	5–10	1	Multidisability
12	PF	Mopani	Female	50–64	> 10 years	3	Multidisability

ASD, Autism spectrum disorder.

the results would be published and used were clarified. Thereafter, written consent was obtained.

The selected special schools were identified using a unique code. No names were used in transcripts and each participant was allocated a code number rather than using their names (e.g. P4 = participant number four) to ensure that research data could not be linked to the individual's identity or institution.

Results

The findings are discussed in conjunction with the literature that reinforces the challenges faced by teachers of children with ASD. McKinsey's 7-S questionnaires have been used as the main dimensions. The final themes and subthemes that serve as the findings of the studies and verbatim comments from the 12 participants are reported next.

Strategy

The study found that all special schools have a long-term plan of action that is well-articulated and supported by a strong vision, mission and values. The strategic plan document that the study focused on was a revised 5-year strategic plan for 2015/2016–2019/2020 by the DBE and South Africa's policy framework on inclusive education. These two strategic documents were reported to be the key approaches for the special schools to achieve their goals, as discussed here.

The documents address the issues related to inclusive education to ensure that all children with disabilities have access to quality education and provide inclusive education that enables everyone to participate effectively in a free society. The vision and mission of DBE are clear, with an action plan to guide the direction of implementation of the strategy and project-related needs of the schools. The goals of the strategic document are in line with the mission. For example, Goal, 26 of the strategic plan is to increase the number of schools that effectively implement the inclusive education policy and have access to centres that offer specialist services (DBE strategic plan March 2016).

The inclusive model of the South African education system is implemented through two sets of guidelines, namely the National Strategy on Screening, Identification, Assessment and Support (SIAS) and the Guidelines for Responding to Learner Diversity in the Classroom through Curriculum and Assessment Policy Statement.

The special education teachers do not appear to have any challenges with the strategic plan or the legal and legislative framework that are in place for inclusive education. However, they were concerned about the economic situation in Limpopo, which has an impact on special school resources and the implementation of the strategic plan and policy framework for inclusive education.

Structure

The study found that there were several challenges raised by special education teachers regarding the way the special schools are structured, which has an impact on the teaching and learning of the ASD children. These include the lack of autism centres and the infrastructure of the special schools in Limpopo.

Lack of autism schools and centres

The main concern was the lack of autism schools in Limpopo. The study showed evidence that there were only three autism classes in the whole province: two classes in the Capricorn district, which caters for 23 learners, and one class in the Waterberg district, which caters for 11 learners. This was supported by the *White Paper no. 6 on inclusive education*, DBE (2015), which stated that the most serious shortage of special schools or specialised units is in the field of ASD in South Africa, especially in the rural areas. Teachers were also concerned about the lack of autism centres for the autism learners who exit the school at 21 years, as evidenced by:

'We don't have a centre for autism and the learners that exit at the age of 21 years, they are kept at home, and our hearts is so broken as educators, and [we] don't know where to take them.' (P2)

Furthermore, one teacher in the Mopani district stated that their school is overcrowded because they are the only special school with a hostel in their district.

Special schools' infrastructure

Special education teachers in Limpopo face a big difficulty in terms of infrastructural circumstances, which have been shown to be a barrier to fulfilling objectives. One of the autistic classes was given a mobile classroom in one of the Capricorn district's special schools.

The mobile classroom was not autism friendly because the floor shook and made a lot of noise when the learners moved or ran around:

'As you can see, we are in a mobile class. The infrastructure is not good for us.' (P6)

As a result, some children with ASD close their ears with their fingers for the rest of the lesson because they are sensitive to noise. Furthermore, in one of the special schools in the Mopani district, two groups of 10 special needs children shared one classroom, yet the demands of each group differed, as evidenced by:

'We are running two classes under one roof.' (P9)

Some children with ASD are epileptic, and there was no place in the classrooms for ASD children with epilepsy to rest or recover after a seizure:

'We just put the mat in the classroom and put him there to rest after a seizure, because we don't have a recovery room.' (P5)

The privacy of ASD children with epilepsy was shown to have been violated.

Furthermore, the mobile classroom lacked resources such as running water. Autism spectrum disorder learners had to use buckets to obtain water from the outside tap:

'We don't have resources such as water that runs in the classroom. As you came here, you saw a learner carrying water in a bucket.' (P6)

Teachers in Limpopo special schools suggested that the Minister of Basic Education visits rural special schools to see what is going on regarding substandard infrastructure that a proper classroom with running water, a toilet and a sink inside is required, rather than mobile classes, to ensure that everything is accessible and to reduce overcrowding.

Systems

The study found that the teachers of ASD children experienced challenges when teaching the ASD learners because of a lack of teaching materials and the curriculum. In addition, the participants raised their perceptions regarding the inclusive education system adopted by the DBE.

Teaching material

Guidelines to Ensure Quality Education and Support in Special Schools (2007) stated that special schools must be equipped with appropriate, up-to-date and well-maintained material resources. These resources for ASD children may include e-learning facilities and personal devices for learners, such as alternative and augmentative communication devices and other assistive technology. A lack of instructional materials was identified as a barrier to accomplishing goals.

Teachers expressed their dissatisfaction with the lack of aided and unaided teaching resources designed expressly for children with ASD, as mandated by the augmentative and alternative communication (AAC) method. As evidenced by:

'In my class, I have a picture communication board. A device works with batteries. The ASD children enjoy it. Unfortunately, we have only one device. When the child is unable to talk, he just presses on the picture, and it will say the things that the child wants. It talks on behalf of the child, like "I want to go to the toilet".' (P11)

Teachers also speculated that the lack of ASD teaching tools could be because of their high cost, which schools cannot afford, such as a computer toy with sounds:

'the school is unable to afford the equipment that autistic children are supposed to use.' (P4)

Curriculum

According to the Guidelines to Ensure Quality Education and Support in Special Schools (2007), the National Curriculum Statement is the norm for all schools, including special schools. Teachers of children with ASD reported a lack of a specific curriculum or syllabus for ASD children. Teachers reported that the DBE has adopted the ordinary school curriculum for learners with ASD, but they are taught

only the basics and they do not write examinations. They also indicated that the ordinary school curriculum is not applicable to moderate, severe and profound ASD children because most of them do not progress beyond Grade 1. Most learners with ASD in special schools are following programmes with vocational or skills-orientated subjects. One teacher suggested that ASD children should have their own curriculum as evidenced by:

'If ASD children can have their own school and the formal curriculum, not to be forced on National Curriculum and Assessment Policy Statement (CAPS), because it is difficult for learners as well as teachers, and we delayed their progress.' (P4)

Inclusive education system

South Africa has adopted an inclusive system to address barriers to learning in the education system. Inclusive education is the approach to education in the 21st century. Firstly, inclusive education is an effective means to avoid discrimination and exclusion. Inclusive education is always related to the provision of high-quality education for all, combining excellence and equity (Guidelines to Ensure Quality Education and Support in Special Schools 2007).

Teachers reported both positive and negative feelings about inclusive education. Some have expressed that inclusive education helps ASD children socialise, as evidenced by:

'ASD children are prone to isolate themselves; however, some of them may be unable to help themselves and may need to use the restroom, in which case I will ask one of the learners with ASD to accompany him.' (P12)

However, others have claimed that inclusive education slows down the progress of other students because ASD children require instruction that is more specialised.

Skills

Teachers indicated that teaching ASD children is a complex task that requires specialised skills. It is essential to have skilled teachers to assure quality education. The study revealed that teachers of children with ASD in Limpopo vary in the level of their knowledge of teaching ASD learners. Most of them expressed the fact that they have limited knowledge because of a lack of job training.

Other teachers stated that they had attended an ASD training between 2004 and 2005 and that their knowledge needed to be updated. One teacher emphasised again that on-the-job training is very important when dealing with ASD children. The following statement proves this:

'If you don't have the luck of attending the workshop, you won't even know where to start.' (P7)

Teachers need accurate knowledge regarding ASD, as they play a vital role in teaching ASD children. Overall, the teachers varied in the level of knowledge that they had regarding ASD. Teaching experience and prior training were positively correlated with knowledge.

Others' meagre understanding was said to have come through reading or feedback from those who attended the course. As evidenced by the following:

'So far I have not attended any ASD workshops. It was just feedback from those who attended the workshop. Sometimes I don't even know whether I'm going forward or backward with my lessons in class.' (P11)

'The little knowledge that I have is through reading, because I have not yet attended the course or training.' (P10)

The following were the suggested needs for on-the-job training: the DBE should organise more regular ASD workshops, continual reading to keep up with new material and participation in research investigations and a practical workshop rather than a theory workshop, where management of ASD children would be demonstrated:

'I need a regular workshop where the presenter of the workshop can also try to demonstrate with these learners, because in most cases when we attend a workshop, it is just a lecture or watching a video, which is not a practical thing for me and is of little help.' (P5)

'So we need to keep on reading to update ourselves. I also suggest that people like you researchers come frequently to interview us to motivate us to read the information.' (P3)

Medical reports of autism spectrum disorder children

Teachers in the Limpopo province were also concerned that ASD children's diagnoses were not specified in medical reports. Most teachers voiced concern over the children's diagnoses, which has an impact on the learners' training. Teachers are unable to assist children if the diagnosis is not disclosed. They independently discovered the children's symptoms and established their own diagnosis. Children are placed in classes depending on their needs; consequently, if those needs are unknown, they will not be satisfied.

This is evidenced by:

'... The psychologist does not disclose the condition of the learner in the psychological report. I think that is what made us guess that we do not know exactly what the learners are suffering from. When it comes to the allocation of classes for these learners, it is difficult because we don't know their diagnosis and we are not allowed to diagnose.' (P8)

'Because the doctors and the psychologist reports do not give a specific diagnosis for these children, we discover some of the signs and symptoms whilst the children are in class.' (P9)

Teachers requested that the medical reports of the children should specify their diagnosis. As one teacher commented:

'Doctors and psychologists need to indicate the specific diagnosis for the children rather than write intellectual disability so that when we admit the learner, we will know what they are suffering from. We understand that it is confidential, but we, as teachers, need to know their types of conditions to assist them.' (P7)

Staff

Staff refers to people and/or human-resource-related issues (Cohen-Vogel 2011). Special schools require both professional

teaching and professional support staff, as well as non-professional staff. Two factors have been identified here as factors affecting staff, staff supply and unbalanced teacher-learner ratio.

Staff supply

All teachers from all special schools voiced concern over the shortage of healthcare practitioners and teacher assistants, which causes ASD children's progress to be slowed, as evidenced by: 'we don't have healthcare professionals in our school; we only have a volunteer professional nurse' (P6). Autism spectrum disorder children require various medical services from various specialists, such as speech therapists because ASD children's speech is impaired, occupational therapists to train them in various vocational skills, dietitians for proper nutrition, psychologists for psychological evaluations and reports and professional nurses for overall nursing care. Teachers observed that developing an individual education plan is not achievable without the help of a health professional; as a result, ASD children's learning needs are not met holistically:

'It is so difficult for us to even have an individual education plan. We cannot do that without those people.' (P6)

The lack of healthcare professionals in special schools affects the teachers because they must manage epileptic seizures and give treatment on their own, but while they are doing so, they have to leave the other children unattended. This situation is evident in the following statement:

'When I'm busy with the children, another one can have an epileptic attack, and then I have to leave the whole group to attend to the epileptic one. So you find that it is so difficult because it depends on the seizure, how long it is going to last, and then I'm supposed to have a record of that seizure.' (P5)

Teachers in Limpopo suggested the improvement of a shortage of health practitioners in the special schools, such as collaboration between DBE and the Department of Health (DoH) so that DoH can allocate health professionals to the special schools on monthly basis. 'The DBE, in collaboration with the DoH, should provide us with assistance for teachers and healthcare practitioners in special schools' (P7). More positions for healthcare practitioners and teaching assistants should be created by the DBE. Teachers can consult with health practitioners about behavioural issues and any obstacles they meet with specific ASD children:

'If I get frustrated as the teacher, I can go and ask for assistance from health practitioners, or maybe a learner develops something, so I can go to them for assistance.' (P5)

Unbalanced teacher-learner ratio

Teachers reported that each autism class should have a teacher and a class assistant, but in special schools in Limpopo, most of the classes do not have a teacher's assistant, as is evident in the following statement:

'In our school, we only have four teacher assistants for the whole school, while each class was supposed to have one teacher and one class assistant.' (P6)

The study also found that one teacher may teach many learners with ASD in one class. The ratio for ASD children in class must be one teacher to six children with a teacher assistant. In one of the autism classes in the Capricorn district, one teacher had 12 children, as evidenced by:

'The teacher-learner ratio is a challenge for me because I am alone in my class with 12 ASD learners.' (P6)

One child with ASD is equalled to six children in the mainstream, and then if the child has ASD and epilepsy, the DBE rates epilepsy as three children. This means that a child with ASD plus epilepsy is equal to nine children. An unbalanced teacher-learner ratio is reported to delay the progress of the ASD children, as teachers are not working according to their expertise:

'My hands are always full – I'm not doing the work according to my expertise because I am alone, and it delayed the progress of ASD learners.' (P12)

Teachers shared their thoughts on the importance of a balanced teacher-to-learner ratio to better manage the class, where ASD children in a class should not exceed 10 to obtain individualised instruction. Autism spectrum disorder children should not be combined with children with other conditions because their health needs are complex and require a range of integrated services:

'I think we should not have more than 10 ASD learners in the class. The learners who have autism need a special time. You must attend to them individually so that they can understand what you say.' (P8)

Shared values

Shared values are organisational values that are usually developed by the organisation's leadership and then adopted by the other members of the organisation (Moyo et al. 2016). Shared values help to define what an organisation is, what an organisation does and what an organisation aspires to be. It means every aspect of what and how teachers teach should be performed with rigour and fidelity. Teachers are individually and collectively accountable for strong academic outcomes, with everyone fulfilling his or her responsibility so that all ASD children can succeed. The participants described the pattern of ASD children's behaviour, the teaching strategies, as well as the behaviour that they think is important to be displayed by the teachers of ASD children. Therefore, they expressed how the ASD children's behavioural problems affected their behaviour.

Autism spectrum disorder child's patterns of behaviour

Teachers expressed challenges faced in the classroom regarding the ASD children's pattern of behaviour. The teachers indicated that when ASD children without speech are angry, they interrupt the class, and some injure themselves.

Other ASD children were reported to bully or act violently towards each other. Autism spectrum disorder children reported learning through repetition and reinforcement; once they have learned something, it becomes a habit or routine. Other ASD learners reported that they do not talk when they are in class but talk when they are alone, reciting what the teacher has said in class. Others had echolalia, as evidenced by:

'They repeat what you said. They also followed the instructions; if you tell them to sit down, they do. Some will spend the whole day staring at the roof, and they avoid eye contact.' (P5)

The ASD children were found not to like noises made by other people. The researcher observed this during data collection, where five learners in one of the special schools always blocked their ears with their fingers. The noise was reported to frustrate them.

Methods to manage behavioural problems at school

Teachers reported using distractions to manage the behaviour problems of the ASD children by allocating tasks to the child to keep him or her busy, giving the child favourite toys and having a child sitting in front or next to the teachers. During break time, two educators and support staff are outside to look after the learners. One teacher shared how she managed those without speech, as evidenced by:

'Those who are unable to talk, I use sign; if I want him to sit down, I just put a chair next to him and he will sit down; if I want him to pray before eating, I just go to him and fold his arms then he will wait for amen.' (P9)

Teaching methods

This study revealed that teachers utilise different methods to train, stimulate and teach ASD children. Autism spectrum disorder symptoms differ in severity. Therefore, different methods are used to meet the learning needs of the child, such as Makaton, Applied Behavioural Analysis, Sunrise, ACC and Treatment and Education of Autistic and Communication Related Handicapped children (TEACCH) methods.

Teachers expressed additional methods to complement the teaching strategies as evidenced by:

'Most of the time, I use lip reading, the signs and concrete examples.' (P2)

'Most of my teaching methods is individual teaching, because those learners are all differed, and I emphasise the strengths rather than weaknesses.' (P5, P8)

'When you teach them, you must have many teaching aids for them to understand, and concrete examples; don't just talk. If you said, "this is a spoon," you must have it, they must see it.' (P2)

Suggested values for teachers of children with autism spectrum disorder

Teachers in this study described that teachers need to have passion, patience, love, acceptance and tolerance of ASD children, without becoming annoyed:

'What is needed is passion or someone with a big heart. If you don't have passion, you won't deal with these learners, because they don't behave like any other normal learners.' (P3)

'Patience is needed in order to assist, guide and lead the ASD learners.' (P1)

'You need to love them and know them; otherwise, you won't stay in a special school.' (P9)

Teachers expressed that these emotions are part of their positive attitude towards ASD children. A child with ASD usually takes longer to perform simple tasks; as a result, ASD teachers should give a child time to complete the tasks. Thus, the researcher visited the special schools and observed that the relationships were collegial, collaborative and productive, and all staff members were held to high professional standards. Furthermore, the school leaders, teachers and staff members were found to model positive, healthy behaviours for ASD children.

Shared belief

Teachers of children with ASD in this study reported the frustration related to teaching ASD children. The study revealed that most teachers believe that teaching ASD children is frustrating, particularly in the case of those children who lack speech, teachers who must teach too many ASD learners in a class, the children's limited attentional capacities and concentration and their lack of integration with other children. The symptoms of ASD differ in intensity and can therefore be difficult for teachers to manage:

'When I initially started teaching these children, I was very frustrated because I had no idea what to do with them, how to interact with them or how to cope with their destructive behaviours.' (P7)

The discrepancy between expectations and reality brings about frustration among teachers and increases their emotional exhaustion. As a result, ASD children reported being frustrated as well because their needs were not met as a result of misunderstandings between them and their teachers:

'Even in the case of a child, it is so frustrating because he does not obtain what he desires.' (P7, teacher for multiple disabilities including ASD, 03 May 2017)

Other teachers were demotivated to go to work because of the frustration generated by teaching ASD students:

'I was usually frustrated after being sent to the special school because of these children, I started to dislike my job. I was demotivated when I thought about going to work.' (P10)

Style

In this section, teachers express their perceptions regarding the support received from top management.

Top management support

Many teachers expressed the view that the senior management of the special school does not provide the necessary support to

deal with the multitude of stressful factors related to teaching children with ASD. These include problems with classroom resources, physical infrastructure, manageable class sizes, support personnel, emotional support and sufficient training. It was further suggested that senior management should visit classes to motivate teachers and check on how they are coping with the stress of teaching ASD children.

Discussion

This article assessed and described challenges faced by teachers of children with ASD in the special public schools in Limpopo, South Africa. Teaching and learning of the ASD children in Limpopo are not well supported and promoted because of substandard infrastructure, curricula, lack of teaching material and health practitioners, unbalanced teacher-learner ratio, inadequate staff skills, shared beliefs and lack of management support.

Teachers were concerned that most of these challenges might be associated with the economic situation in Limpopo. These challenges are reported to have a serious impact on the implementation of the DBE strategic plan 2015/2016–2019/2020 and the policy framework for inclusive education. According to McKinsey's 7-S model framework (1980), strategy should align with the other six elements to provide strong results. However, the study showed that the challenges experienced by teachers will not bring inclusive education closer to its goals.

The findings are consistent with a DBE report from 2014, which said that special schools in rural areas have the worst facilities in terms of instructional space, infrastructure and infrastructural conditions. Inadequate infrastructure leads to overcrowded classrooms, limits the number of admissions and could affect the quality of education. Furthermore, some children with ASD have been found to be educated in a mobile classroom that made a lot of noise when the learners moved or ran around. However, Urbano et al. (2019) stated that individuals with ASD require significant modifications to the environment because of problems related to noise. The classrooms should be quiet and free of loud noises that may interrupt learning.

Teachers were also concerned about the teacher-learner ratio, as some teachers were teaching 12 ASD children without a teacher assistant. The prescribed ratio for the number of ASD learners in a class should be one teacher for every six children, together with a teacher assistant (McLeskey, Tyler & Saunders Flippin 2004). These will promote maximum learner and teacher interaction, decrease workload because of overcrowding (Alias & Salleh 2017) and allow adequate teaching time for teachers (Osai et al. 2021).

The study also found that there was a serious shortage of professional specialists in the special schools such as physiotherapists, occupational therapists, professional nurses, social workers, dieticians and psychologists. Teachers of children with ASD prepared individual teaching plans for

each ASD child on their own, without the professional specialists. Consequently, most of the symptoms and behavioural problems of ASD children are neglected. The DBE acknowledged that the special schools do not have adequate specialist professional support staff and non-teaching as highlighted in the implementation of *Education White Paper 6 on Inclusive Education* report (Department of Basic Education 2015). The findings in this study are in contrast to research performed in KwaZulu-Natal, South Africa, in which the majority of learners with ASD received regular speech and occupational treatment, as well as some help from an on-site psychologist (Weber 2013).

Teachers also raised concerns regarding the lack of teaching materials (Alias & Salleh 2017; Udoba 2014) that were also acknowledged by the DBE (2014), which states that special schools must be equipped with appropriate and up-to-date material resources. Lack of resources was found to compromise the quality of the ASD children's teaching and learning, which delayed their progress. The findings correspond with the findings of a study conducted in Lesotho (Khoaeane 2012) and Tanzania (Berry & Gravelle 2013).

Teachers of children with ASD in the Limpopo province were found to have little information about teaching children with ASD because of a lack of on-job training (Edward 2015; Udoba 2014). Similarly, in Tanzania, more than half of the teachers were less knowledgeable about the atypical characteristics of children with ASD (Weber 2013). Lack of adequate training and preparation for teachers was observed as a critical concern, as it affects the progress of the children (Allam & Martin 2021; Litton et al. 2017).

Teachers with high levels of training with ASD learners are less burnt out than others (Coman et al. 2013). Teachers of specialised classes must be specifically trained for their role. That is, they should have obtained a diploma preparing them for teaching children with special needs (Boujut et al. 2016). Autism-specific training has been demonstrated to be an effective method for delivering ASD support to learners (Weber 2013). Professional development and quality in service is needed to provide teachers with the skills and training needed to effectively serve ASD children (Hendricks 2011). Guidelines to Ensure Quality Education and Support in Special Schools (2007) highlight that all teaching staff should have had training in the development of inclusive learning programmes and must engage in ongoing professional development related to the needs of the learners.

McKinsey's 7-S model framework (1980) indicated that it is critical for organisations to recruit and retain qualified employees and to nurture and sustain good staff morale and motivation (Alshaher 2013).

Teachers of children with ASD were found to apply a variety of teaching methods to fulfil the learning needs of all

ASD children with different patterns of behaviour (Abou-Hatab, Zahran & Abbas 2013; Fernandez-Lopez & Sukno 2018; Grove & Woll 2017; Roane, Fisher & Carr 2016; Zeina, Laila & Bashir 2015). However, a majority of teachers were not satisfied with the support provided by the senior management of the school. The influence of the top management on a teaching and learning is significant for funding and experience support (Holsapple & Lee-Post 2006).

This study found that teachers should have passion, patience, acceptance, tolerance and a good attitude towards ASD children to facilitate learning. The challenging kinds of behaviour reported to be a source of frustration for teachers include impaired communication (Alias & Salleh 2017) in particular, as it is the most difficult for teachers to manage and is associated with high levels of stress (Nistor & Chilin 2013). McKinsey's 7-S model framework (1980) emphasised that a supportive culture is an important aspect of an organisation (Alshaher 2013). The special schools should ensure that learning is supported and encouraged; that learners are given time and opportunities to learn; that employees and managers have a positive attitude towards training and learning; and that learning should be supported by top management and linked to broader inclusive education goals (Hanafizadeh & Ravasan 2011).

Lastly, the curriculum utilised in inclusive education systems for children with ASD was reported not to be effective. Participants suggested the need for a curriculum specifically for ASD children. Because the current curriculum is inadequate and could not prepare moderate and severe ASD children for independent living, they are dependent on their families indefinitely (Ahmadi, Zalani & Amrai 2011). Children with ASD reported not receiving the necessary support and interventions in inclusive education because they require a one-to-one teaching approach. The system that the DBE is utilising seems not to be aligning well with the needs of the ASD children in rural schools without adequate resources.

Strengths and limitations

McKinsey's 7-S model framework was used to guide the process of the study and to make research findings meaningful. The study design adopted assisted the researchers in obtaining complete and accurate information by allowing special education teachers to describe their day-to-day experiences regarding the challenges faced when teaching ASD children. The limitation is that only three of the participants were teaching a specialised class for autism; the rest were teaching ASD children in a multidisability class. This was because of the lack of autism schools in the province. Despite the limitations, the aim and objectives were achieved.

Implications or recommendations

This study reports challenges faced by teachers of children with ASD in the special public schools in Limpopo.

Understanding the challenges faced by the DBE in providing support to public special schools in Limpopo is crucial, given that the system, staff and structure of special schools are the primary factors contributing to poor support of teachers of children with ASD. Similarly, challenges faced by special schools regarding the development and supply of staff must be explored. The study recommends that the DBE at the national level should monitor all special schools regularly and provide the necessary support.

Aspects to be monitored include staff development, infrastructure provisioning and material and human resource management. The DBE at the national, provincial and district levels should provide special schools with adequate physical infrastructure, learning and teaching support materials, assistive devices and technology. All special schools, particularly in the Limpopo province, should have adequate professional specialist support personnel to provide physical, psychological, social and instrumental support and other therapeutic support to ASD learners and teachers.

Conclusion

This study brings to light the challenges faced by special education teachers of children with ASD in the selected public special schools of the Limpopo province. The findings revealed several factors that influence the provision of high-quality education to children with ASD. As a result, these findings can be used to monitor and evaluate the education of children with ASD in special public schools.

Inclusive education programmes should be evaluated on a regular basis to ensure that they are meeting the complex needs of children with ASD. The principals of special schools should ensure compliance with the strategic goals and objectives, as well as the policy frameworks on inclusive education.

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Competing interests

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

Authors' contributions

G.O.S. was involved in conceptualisation, investigation, resources, data curation and writing (original draft preparation). G.O.S. and T.M.M. performed formal analysis

and methodology. G.O.S., T.M.M., M.J.M., T.E.M. and L.E.M. were involved in writing, review and editing. G.O.S. and T.M.M. were responsible for visualisation. T.M.M. was involved in supervision. All authors have approved the submission of the manuscript.

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Data availability

The data that support the findings of this study are available on request from the corresponding author, G.O.S. The data are not publicly available because of containing information that could compromise the privacy of research participants.

Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

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