

**UNIVERSITY OF ZULULAND**



**ENHANCING LEARNING PARTICIPATION FOR LEARNERS WITH AUTISM SPECTRUM  
DISORDER IN A RESOURCE CENTRE IN THE PINETOWN DISTRICT**

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY AND SPECIAL EDUCATION

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**DECLARATION BY CANDIDATE**

I acknowledge that I have read and understood the University's policies and rules applicable to postgraduate research, and I certify that I have, to the best of my knowledge and belief, complied with their requirements.

I declare that this study, save for the supervisory guidance received, is the product of my own work and effort. I have, to the best of my knowledge and belief, acknowledged all sources of information in line with normal academic conventions.

I further certify that the proposed research will be original, and that the material to be submitted for examination has not been submitted, either in whole or in part, for a degree at this or any other university.

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## **ABSTRACT**

Teachers of learners with Autism Spectrum Disorder (ASD) are experiencing challenges with understanding the behaviours of learners with ASD. ASD learners are impaired in personal communication and interaction, which makes it difficult for them to fully participate in a classroom. Owing to the deficits caused by the disorder, teachers feel helpless when trying to engage learners with ASD in a classroom. Their poor participation leads to low academic performance as they are unable to communicate their lack of understanding of the subject matter. This study aimed at enhancing the participation in learning of learners with ASD. The procedures used in this study included the qualitative research method to collect data, and purposeful sampling to select seven teachers from the resource centre in the Pinetown District. Thematic analysis became of value in analysing and understanding the data collected. Even though teachers have attended workshops focused on understanding learners with ASD, there are still some challenges when it comes to facilitating the strategies identified. The lack of budget becomes a limitation as the school is unable to purchase all the necessary equipment and materials for learners with ASD. Teachers shared in discussion the strategies that they identified to be effective in engaging learners with ASD.

## Contents

List of Abbreviations .....	1
CHAPTER 1 .....	2
1. INTRODUCTION.....	2
1.2 PRELIMINARY LITERATURE REVIEW .....	2
1.3 THEORETICAL FRAMEWORK .....	5
1.3.1 Sociocultural theory.....	5
1.4 PROBLEM STATEMENT.....	6
1.5 AIM AND OBJECTIVES OF THE STUDY .....	6
1.5.1 Aim of the study.....	6
1.5.2 Objectives of the study .....	6
1.5 RESEARCH QUESTIONS.....	7
1.6 RESEARCH DESIGN AND METHODOLOGY .....	7
1.6.1 Research paradigm: Interpretivism .....	7
1.6.2 Research method.....	7
1.6.3 Data collection .....	8
1.6.3.1 Semi-structured interviews.....	8
1.6.3.2 Observation.....	8
1.6.4 DATA ANALYSIS .....	8
1.6.4.1 Thematic analysis.....	8
1.7 ETHICAL CONSIDERATIONS .....	9
1.8 FEASIBILITY OF THE STUDY.....	9
1.9 RESOURCES .....	9
1.10 INTENDED CONTRIBUTION TO THE BODY OF KNOWLEDGE .....	9
1.11 INTELLECTUAL PROPERTY .....	10
1.12 KNOWLEDGE DISSEMINATION.....	10
CHAPTER 2 .....	11
LITERATURE REVIEW .....	11
2.1 INTRODUCTION.....	11
2.2 THEORETICAL FRAMEWORK: SOCIOCULTURAL THEORY (SCT).....	11
2.2.1 ORIGIN OF SOCIOCULTURAL THEORY .....	12
2.2.2 OBJECTIVES OF THEORY .....	13
2.2.3 PHILOSOPHICAL AGENDA OF THE THEORY.....	15
2.2.4 RELATION TO THE PARTICIPANTS .....	16

2.3 FEATURES OF AUTISM SPECTRUM DISORDER WHICH INFLUENCE LEARNING PARTICIPATION OF LEARNERS.....	17
2.3.1 Communication and spoken language.....	17
2.3.2 Sensory sensitivity.....	18
2.3.3 Response inhibition.....	19
2.3.4 Task initiation.....	20
2.3.5 Interpersonal interaction and relationships.....	20
2.3.6 Inflexibility.....	21
2.4 PEDAGOGICAL PRACTICES THAT ENHANCE LEARNING PARTICIPATION IN LEARNERS WITH ASD .	22
2.4.1 Applied behaviour analysis.....	22
2.4.2 Video modelling.....	24
2.4.4 Child’s preference.....	27
2.4.5 Social story.....	28
2.4.6 Treatment and education of autistic and related communication handicapped children (TEACCH).....	29
2.5 NECESSARY ARRANGEMENTS SENSITIVE TO LEARNING PROFILES OF LEARNERS WITH ASD.....	30
2.5.1 Individualised education programme.....	30
2.5.2 Collaborations.....	31
2.5.3 Highly trained staff.....	33
2.5.4 Early intervention.....	34
2.6 SUMMARY.....	35
CHAPTER THREE.....	36
RESEARCH DESIGN AND METHODOLOGY.....	36
3.1 INTRODUCTION.....	36
3.2 RESEARCH PARADIGM.....	36
3.2.1 Interpretivism.....	36
3.3 RESEARCH METHOD.....	37
3.3.1 Sampling design.....	37
3.3.2. Criteria for selection of participants.....	38
3.4. DATA COLLECTION.....	38
3.4.1. Semi-structured interviews.....	39
3.4.2. Observation.....	39
3.5. DATA ANALYSIS.....	39
3.5.1. Thematic analysis.....	40

3.6.	DATA QUALITY .....	42
3.6.1.	Confirmability.....	42
3.6.2.	Credibility .....	42
3.6.3.	Dependability.....	42
3.6.4.	Transferability .....	43
3.7.	ETHICAL CONSIDERATIONS.....	43
3.7.1.	Permission.....	43
3.7.2.	Informed consent.....	43
3.7.3.	Participation.....	44
3.7.4.	Deception.....	44
3.7.5.	Privacy.....	44
3.7.6.	Plagiarism.....	44
3.7.7.	Avoid harm.....	45
3.7.8.	Confidentiality.....	45
3.8.	SUMMARY .....	45
	CHAPTER FOUR .....	46
	PRESENTATION OF DATA AND DATA ANALYSIS.....	46
4.1	INTRODUCTION .....	46
4.2	OBJECTIVES OF THE STUDY .....	46
4.4	THEMES AND SUBTHEMES.....	47
4.4.1	How do the characteristics of learners with ASD affect their participation in class?.....	47
4.4.1.1	The impact of behavioural challenges of learners with ASD on class participation .....	55
4.4.1.2	The influence of comorbidity and treatment on active engagement .....	58
4.4.2	ASD learners’ participation and interest in physical activities.....	59
4.4.3	The creativity and flexibility of teachers of learners with ASD.....	62
4.4.3.1	How does motivation keeps learners with ASD actively engaged in class participation?.....	66
4.4.4	The importance of an environment for learners with ASD.....	69
4.4.5	The need for continuous teacher development for learners with ASD.....	73
4.4.6	The importance of a multidisciplinary team for learners with ASD.....	74
4.4.6.1	The importance of an individual educational plan (IEP) for learners with ASD.....	75
4.4.6.2	The importance of parental involvement in children’s education .....	76
4.5.1	The researcher’s interpretations .....	79
4.6	SUMMARY .....	80
	CHAPTER FIVE .....	81

CONCLUSION AND RECOMMENDATIONS.....	81
5.1 INTRODUCTION.....	81
5.1.1. Discussions that aim at answering the following research questions:.....	81
5.1.2 Themes and subthemes that emerged from data analysis to answer the research questions...	81
5.2 INTERPRETATION OF THE FINDINGS.....	82
5.2.1 What are the features of ASD which influence learners’ participation in learning?.....	83
5.2.2 What are the available pedagogical practices that could enhance the participation in learning of learners with ASD?.....	87
5.2.3 What are the necessary support mechanisms to improve the learning of learners with ASD?..	93
5.3 SOCIOCULTURAL THEORY .....	96
5.4. PRACTICAL AND POLICY IMPLICATION OF THE RESEARCH FINDINGS .....	97
5.5. Recommendations for future research.....	98
5.6. Limitations of the study .....	98
5.7 CONCLUSION.....	99
REFERENCES.....	100
APPENDIX 1 .....	120
APPENDIX 2 .....	123
APPENDIX 3 .....	126
APPENDIX 4.....	128
APPENDIX 5 .....	130
APPENDIX 6.....	131
APPENDIX 7 .....	132
APPENDIX 8 .....	133

## **List of Abbreviations**

ASD- Autism Spectrum Disorder

ZPD- Zone Proximal Development

MKO- More Knowledgeable Other

SIAS- Screening, Identification Assessment and Support.

IEP- Individualised Education Programme

DBE- Department of Basic Education

ABA- Applied Behaviour Analysis

TEACCH- Treatment and Education of Autistic and Related Communication Handicapped Children

# CHAPTER 1

## 1. INTRODUCTION

This study intended to investigate pedagogical practices used by educators to enhance participation in learning of learners with Autism Spectrum Disorder (ASD). The study used the qualitative research approach to gain a detailed description from the educators. Interviews and observations were used as methods for data collection, and thematic analysis was used to analyse data. Vygotsky's sociocultural theory helped in understanding the learning process of learners with ASD.

Learning participation of a learner with ASD in a classroom can be challenging as ASD is characterised by symptoms of deficit in social communication behaviour, social interactions and restricted patterns of behaviour (APA, 2013). These symptoms have a significant role as they impact the daily functioning of learners with ASD, especially in their interactions with peers, teachers and other personnel within a school setting (Chung, Chung, Edgar-Smith, Palmer, DeLambo, & Huang, 2015).

To increase the likelihood of participation of learners with ASD within an educational classroom, it was important to determine effective interventions that assisted teachers in reducing the impact of the disorder in the learners' learning process. Participation of learners in class helped teachers to be able to identify learner problems so that they could help them according to their educational needs. Strategies used focused on each child as an individual because every child learns differently, and has different strengths and weaknesses (Legnon, 2015).

## 1.2 PRELIMINARY LITERATURE REVIEW

ASD seems to be an effect of unknown biological dysfunctions of the brain that have consequence on the development or reaction of the brain while handling information. This dysfunction can affect any of the processes of receiving, processing or interpreting information (Ramachandiran, Jomhari, Thiyagaraja, & Mahmud, 2015).

Holtz, Ziegert and Baker (2004) mentioned that learners with ASD may face the problem of not being able to socially engage with others, while some may repeat the same words with no purpose or understanding of the meaning of those words. It is usually very hard for the teacher to understand what the learner is really trying to express.

Research revealed that many learners with ASD are consistently obsessed that their daily preferences remain in the same structured way. Because of this insistence on their sameness, the first challenge experienced is in going to school (Holtz, et al., 2004). ASD learners have deficit in response inhibition, a skill that helps individuals to be able to evaluate the whole situation and hold the urge to do or say anything. De Jager and Condy (2017) pointed out that those ASD learners often have difficulty ignoring irrelevant information that can come about during communication or social interaction. An ASD learner is often willing to start a task, but will use his or her own time frame and strategy that often do not comply with the instructions given by the teacher. Often when an ASD learner experiences a task initiation challenge, it may be misinterpreted as a lack of cooperation, a lack of motivation or reluctance to respond or follow instructions or rules.

Learners with ASD have trouble deciding what to do next, which often results in losing focus, no longer paying attention and thus losing interest in completing a task. Jansen, Petry, Ceulemans, Noens and Baeyens (2017) mentioned that an ASD learner can be easily distracted when working towards completing a task. He or she will appear to have a “one-track mind” and a fear of failure. Unexpected changes can lead to panic and stress (De Jager & Condy, 2017). Learners with ASD seem to have a fear of misinterpreting feelings or spoken communication, leading to hesitation and a more passive attitude in social situations while waiting for other people to address them first (De Jager, & Condy, 2017).

Applied behaviour analysis (ABA) is an approach based on behavioural principles that derive from the subject being observable (Leaf, Cihon, Ferguson, & Weinkauff, 2017). This approach describes interventions and changes in behaviour that are affirmed by the behavioural principles. In practice, ABA applies behavioural principles to enhance socially important behaviour. It has been applied in a wide range of problems of developmental disability such as ASD. The key element of ABA is to encourage good behaviour by rewarding it, which increases the chances of that behaviour occurring again in future in similar situations. Punishment is there to decrease the likelihood of that particular behaviour occurring again.

Another approach used is the treatment and education of autistic and related communication-handicapped children (TEACCH), which focuses on identifying strong points of autism and using them to promote learning and social interaction. It also focuses on important elements such as perception, imitation, communication, motor skills and cognition (Sanz-Cervera, Fernández-Andrés, Pastor-Cerezuela, & Tárraga-

Mínguez, 2018). This approach emphasises the importance of understanding ASD and trying to modify the environment to accommodate deficits or impairments that have resulted from ASD. The educational structure focuses on physical arrangement of the class environment by decreasing visual barriers and minimising distractions.

Legnon (2015) discussed the benefits of teaching social skills in the classroom using games. Using games to promote learning participation can be beneficial as it educates the learners about the appropriate behaviour in different environments. It involves waiting for your turn before participating, and there is a set of rules that needs to be followed, as that also applies to the classroom settings. The learners can use the skills formulated from games and try to transfer them to real life contexts, and their participation in classroom activities may increase.

One of the ASD characteristics is the rigid interest in a particular subject. This characteristic is usually seen as a deficit, but it can be channelled to become a strength for that learner. Teachers use the learner's interest to increase active learning in class. The learner's preference is brought into the curriculum to make him/her more interested in what is learnt in class.

The research shows that the creation of the educational programmes that are effective in teaching learners with ASD usually comes with a lot of challenges which may be caused by an increase in population, the limited number of experts, and the spectrum of the disorder, which is displayed in different ways. In the creation of an educational programme it is important to have highly trained experts that fully understand ASD (Roy, 2010). The individualised education programme (IEP) serves as a guideline that gives a teacher the path to follow when they provide instruction to learners with ASD. An IEP is based on a learner's interest and abilities.

Early identification of the disorder is very important as it allows early intervention (Roy, 2010). For the outcome to be more positive, treatment must be done as soon as there is a diagnosis made, and the treatment is decided among a team of highly trained professionals, together with the family of the learner. Screening, identification, assessment and report (SIAS) is the policy in the education system designed to identify students with special needs (DBE, 2014)

## **1.3 THEORETICAL FRAMEWORK**

### **1.3.1 Sociocultural theory**

Sociocultural theory was developed by Lev Vygotsky. According to Vygotsky, the individual learning process is influenced both by the individual and the culture. Through the interaction the learner has with the society and culture occurs psychological development (Panhwar, Ansari, & Ansari, 2016). Vygotsky stated that the development of intellectual abilities occurs in two stages: the interpsychological stage, when the child communicates and interacts with other people, and the intrapsychological stage, which involves the development of higher mental functioning (Vygotsky, 1978).

Vygotsky did not ignore the growth due to internal aspects. His ideas clearly indicate that learning relies equally on inner stimuli and sociocultural forces. According to this approach, communicative practice makes it possible for knowledge to be socially constructed (Rodina & Pathology, n.d.). Vygotsky believed that in order to support a disabled learner there should be first a special educational context where the development of higher mental function can serve as a compensation for the weakness of the natural function caused by the disability (Rodina & Pathology, n.d.).

The special education should focus mainly on providing and implementing a positive differential approach which may assist the disabled learner to develop higher mental functions. In this theory, the learner's development is characterised by his/her functions that are mature. If the learner is able to do something without help, it shows that the function of that activity has matured (Brojerdi, 2017). Children process and internalise the information gained through the interaction that takes place between themselves and others. This sociocultural communication helps learners acquire learning from others. Sociocultural theory suggests that learners create learning from interaction with their social and internal worlds.

Vygotsky urged that the most effective sociocultural conditions for development among learners with disability are the interactions with others, and that the determination of the learners with disability is through the social environment and those interactions. In a classroom setting it is very important for the teacher to understand the level or zone of proximal development (ZPD) of the learner because by assessing it the teacher can determine the learner's current intellectual level and provide the instructions and help from the more knowledgeable other (MKO), and that will help expand the learner's capability. Vygotsky stated that by providing opportunities for shared activity and

instruction, teachers can help mediate and promote the learner's cognitive development (Peters, 2016).

## **1.4 PROBLEM STATEMENT**

Teachers of learners with ASD do not know how to handle the situation of learning participation. Learners with ASD have social deficits and language problems that result in social or behavioural difficulties (Fein, & Jones, 2015). It seems that autistic learners experience difficulty with mastering playing an active role in all class activities. It appears as if interventions measuring participation receive little attention in the classroom setting. Focus is mainly on academic achievements. Interactions between teachers and learners with ASD are usually impacted by tensions caused by ASD-related behaviour such as poor social and emotional understanding (Chung et al., 2015)

Learners with ASD are reported to have a higher level of anxiety than their peers. They tend to behave more hyperactively, and are emotionally vulnerable (Dollion, Underwood, & Freemantle, 2016). Learners with ASD show little or no interest in discussions, and are often out of favour with the group participating. According to Fein and Jones (2015), successfully integrating learners with ASD and their peers is a challenge facing most schools as teachers have little understanding of ASD learners. Autistic learners usually have difficulties in a situation that requires the planned activities to suddenly change, and when that distress experienced is high they often display behaviour such as irritation, inability to think of an alternative, panic, outbursts, fear or anger. (Poljac, Hoofs, Princen, & Poljac, 2017).

## **1.5 AIM AND OBJECTIVES OF THE STUDY**

### **1.5.1 Aim of the study**

The study aims at investigating ways of enhancing learning participation of learners with ASD in the Pinetown District.

### **1.5.2 Objectives of the study**

- To investigate the features of ASD which influence learners' learning participation.
- To explore the available pedagogical practices that could enhance the learning participation of learners with ASD.

- To determine the necessary support mechanisms to improve the learning of learners with ASD.

## **1.5 RESEARCH QUESTIONS**

- What are the features of ASD that influence learners' participation in learning?
- What are the available pedagogical practices that could enhance the participation in learning of learners with ASD?
- What are the necessary support mechanisms to improve the learning of learners with ASD?

## **1.6 RESEARCH DESIGN AND METHODOLOGY**

### **1.6.1 Research paradigm: Interpretivism**

A research paradigm is about understanding the reality of the world (Rehman & Alharthi, 2016). Interpretivist paradigms focus on qualitative research which focuses mainly on trying to find the understanding and viewpoint of the subject rather than the viewpoint of the researcher or the observer. This research focused on understanding a variety of strategies used to enhance the learning participation of learners with ASD. Attention was centred on finding individuals' understanding that leads to their interpretation of the world they live in (Kivunja, & Kuyini, 2017).

### **1.6.2 Research method**

This study used a qualitative approach to gain a full understand of the experiences that teachers have in the process of educating learners with ASD, and which strategies they find most effective in enhancing their participation in class. Qualitative researchers study things in their natural setting, to be able to gain understanding and the meaning of a phenomenon according to the subjective interpretations of individuals. The qualitative approach has different strategies for organising data to bring together the participants' descriptions of their subjective experiences (Crowe, Inder, & Porter, 2015). The strength of qualitative research relies more on the ability to provide people's true understanding and experience of the issue under investigation. The qualitative method is flexible as it allows participants to respond using their own words, and does not force them to choose among any given options.

### **1.6.3 Data collection**

There are many different ways that data can be collected, depending on the purpose and aim of the study. This study used semi-structured interviews and observation techniques to collect data. Data collection involved the process of gathering and analysing data to get an understanding of the phenomenon of interest.

#### **1.6.3.1 Semi-structured interviews**

The use of semi-structured interviews allowed for the thematic analysis of data from the qualitative approach, and it was a useful and flexible technique for small research (Pathak, & Intratat, 2012). Semi structured interviews were carried out in person, i.e. face-to-face. The researcher chose a place that was comfortable and had minimum disturbances. Their permission was asked from the teachers to record the interviews. Semi-structured interviews allowed the teachers to further explain the responses they had given, and the researcher directed the interviews to make sure they did not stray from the topic.

#### **1.6.3.2 Observation**

According to Smit and Onwuegbuzi (2018) observation includes listening attentively and paying full attention. The observations entailed the researcher observing the teachers in their natural setting to gain a true reflection of their behaviour as they continued to behave as they did every day. The researcher observed the teachers in the classroom and the different strategies they used in teaching learners with ASD. The observation was of different teaching practices and support mechanisms that seemed effective in enhancing the learning participation of learners with ASD. While observing the teachers, the researcher avoided any direct contact with learners with ASD. Observation provided with the platform to observe the teacher-child interaction at their natural setting (Colliers, Coenen, Remmen Philips, & Anthierens, 2019). Field notes and own reflections were always joint down during each observation session for a detailed description (Moser, & Korstjens, 2018).

### **1.6.4 DATA ANALYSIS**

#### **1.6.4.1 Thematic analysis**

This study used thematic analysis to analyse the data. Thematic analysis is defined as a particular qualitative technique used to gain an understanding about patterns of meaning in the entire data (Percy, Kostere, & Kostere, 2015). Thematic analysis is a flexible method that involved different procedures such as organising, describing and

interpreting data in a qualitative approach (Crowe et al., 2015). The researcher became familiar with the data through reading and rereading it from the interviews and observation. Thematic analysis has six phases (Braun & Clarke, 2006) that will be discussed in detail in Chapter Three.

### **1.7 ETHICAL CONSIDERATIONS**

Ethics in the present context are the moral standards for the professional academic's behaviour that were followed by the researcher. Permission to conduct the study was obtained from the provincial office of the Department of Basic Education, the Pinetown District Office, and the Principal of the school where research was conducted. The participation of the teachers was voluntary, and they were informed that they could leave anytime they felt any discomfort. Ethical principles such as confidentiality, privacy, informed consent, and avoiding harm to the participants and learners were maintained during the research study.

### **1.8 FEASIBILITY OF THE STUDY**

This study gathered information from the teachers of learners with ASD as they are the primary sources on teaching such learners. Financial support was obtained from National Research Funding (NRF).

### **1.9 RESOURCES**

The reading material was accessible electronically from the university library's electronic resources. The information was captured through a tape recorder and computer. The interviews and data analysis was achieved through human resources.

### **1.10 INTENDED CONTRIBUTION TO THE BODY OF KNOWLEDGE**

"Family quality of life of South African families raising children with autism spectrum disorder" by Schlebusch, Dada and Samuels (2017) describes the family quality of life among families who are raising a young child with ASD, and "Early detection of autism spectrum disorder in young isiZulu-speaking children in South Africa", Chambers, Wetherby, Stronach, Njongwe, Kauchali and Grinker (2017). focuses on using culture appropriate tools in the early detection of autism. This study contributes to the body of knowledge by focusing on learning participation as there has been little research done locally on this topic. The study also benefits the South African DBE by making

recommendations for enhancing learning participation of learners with ASD as informed by the teachers' perceptions.

### **1.11 INTELLECTUAL PROPERTY**

Special intellectual property rights, other than copyright issues, are not expected to originate from this study.

### **1.12 KNOWLEDGE DISSEMINATION**

The findings of this research will be communicated to the DBE in the Pinetown District. The results of the study will also be shared with the community that participated in this research. The researcher will have a meeting with the educators from whom data were collected to share the results of the study.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

This chapter gives a detailed discussion on related literature which was reviewed, informed by the objectives of investigating the features of ASD which influence learners' participation in learning. There is also exploration of the available pedagogical practices that can enhance that participation. The determination of necessary support mechanisms to improve the learning of learners with ASD will also be discussed. The sociocultural theory of development will be used to better understand the influence of social interaction in the cognitive development of a child.

Social impairment and repetitive behaviour and interest are the core features of ASD (APA, 2013). These features have been proven to affect the relationship the child has with others and their engagement in social interactions (Kretzmann, Shih, & Kasari, 2015; Mostert-Kerckhoffs, Staal, Houben, & de Jonge, 2015). Little, Ausderau, Sideris and Baranek (2015) stated that participation of learners with ASD in activities can be positive in providing them with the opportunity to learn in different contexts and develop their skills. Once the effective strategies are identified, they can be used to increase the learners' participation in the learning process (Gray, & DiLoreto, 2016).

#### **2.2 THEORETICAL FRAMEWORK: SOCIOCULTURAL THEORY (SCT)**

Sociocultural theory provides insight into how a person's mental function develops based on cultural context, and that psychological development is created through participation in social and cultural activities (Scott, & Palincsar, n.d.). Sociocultural theory states that each person's development is influenced by culture and social interaction, so learners differ from each other and different tools are used for different cultural activities to help the child develop, depending on their cultural context (Eun, 2016).

Vygotsky looked at the cultural and social environment of students with disability. He did not focus on the biological aspect of the disorder, but on the secondary, socially created consequences created by the social and cultural environment of people with disabilities

(Eun, 2016). He saw that consequences that are created had more influence than the biological ones, and created more problems in the social and cultural interaction in the developmental process. Children with disabilities are isolated, and are not given the chance to fully develop as their social interactions are limited. Sociocultural theory focuses on developing the strength of the child rather than curing his/her impairments (Goodall, 2015).

### **2.2.1 ORIGIN OF SOCIOCULTURAL THEORY**

Sociocultural theory was founded by L.S Vygotsky in his work in 1924 to 1932, and collaboratively developed by his colleagues and students. His approach to understanding cognition was deeply rooted in his understanding that the human mind develops through the social and cultural process (Ohta, 2017). He was not only interested in creating theory about human behaviour; he also wanted to create a new psychology. Unfortunately, he died at a very young age (37) before he could finish his work. Sociocultural theory emphasises that education is developed through culture and the individual (Panhwar et al., 2016).

The basis of learning and development is the social interaction and the learning process that involves the internalising of skills and knowledge. In transforming it from the social to the cognitive level (Shabani, 2016), Vygotsky did not ignore the influence of internal aspects on human development, as he clearly stated that development occurs as a result of both external and internal forces. He stated that it is important to distinguish the primary disability, which is caused by the disorder, and secondary disability, which is caused by cultural and social conditions (Rodina, 2006).

The integration of the mind and social interaction is the major element of Vygotsky's theory (Shabani, 2016). He identified that there is a difference between the biological and socio-historical forms of development, and urged that biological development occurs owing to time, and is not really development, but it leads to different forms of social interaction (Shabani, 2016). Vygotsky did not agree with the quantitative diagnosis used to understand individuals with disability, and claimed that there is room for development; it is not just a fixed condition (Rodina, 2006).

The primary symptoms such as visual or hearing deficits are the reason that the children are excluded from the traditional education system. Thus, this may lead to the secondary symptoms of the disability, which may cause the child to be disconnected from the culture which is the source of the development that improves their mental function

(Rodina, 2006). Sociocultural theory believes that an individual is able to create his/her knowledge from the interaction he/she goes through with the environment and people in the environment (Panhwar et al., 2016). The secondary condition that is caused by the primary disability has been shown to have a destructive impact on the development of children with disabilities. The social interaction that the child has with his/her environment will determine his/her personality, and not the disability itself. Sociocultural theory has focused more on educational setting (Eun, 2016).

## **2.2.2 OBJECTIVES OF THEORY**

### **2.2.2.1 Social interactions**

Social and cultural interaction facilitates the cognitive development of the individual. The relationship that the teacher and the learner has is also part of the social interaction (Lee, 2015). In his sociocultural theory, Vygotsky believes that the educational and mental development of a person rely entirely on the social, cultural and historical context that they are in, and the culture is not shaped by the learner, but it is the learner that is shaped by the culture (Panhwar et. al., 2016)

Through the teaching and learning in the social interactions new mental tools are created that replace biological adaptation as the main mechanism that is responsible for the evolution of humankind (Scott, & Palincsar, n.d.). Vygotsky believed that the development of higher intellectual process occurs in two ways, namely, the intrapsychological and the interpsychological. The interpsychological process is when the learner interacts with other people, and the intrapsychological process is when the learner uses his/her own intrinsic forces to strengthen him/herself (Panhwar et al., 2016). As soon as the learner interacts with other people, that is when the learning starts to occur through the communication that occurs in interaction. The learner begins to internalise the information and knowledge that he/she gains from other people.

Vygotsky indicated that what the learner brought to the interaction was also important, and did not only focus on what the more knowledgeable other (MKO) brought to the interaction, as learning occurs from the interaction of both individuals (Scott, & Palincsar, n.d.). The values of a culture are passed down through social interaction and conversations using a tool such as language (Eun, 2016). Vygotsky stated that the creation of knowledge is not found in the mind, but in the social interaction of the less and more knowledgeable (Shabani, 2016).

### **2.2.2.2 Social and cultural environment**

The MKO is someone who has more knowledge or understanding of a particular skill or task than the learner (McLeod, 2014). Although many people think that the MKO is a teacher, it can be anyone who has more knowledge or experience, and that person can be a parent, another adult or a peer.

The MKO does not have to be a human being. Many companies use electronic support systems to facilitate learning. Electronic tutors have been used before to guide the learning process in the educational setting. The MKO just has to know more than a learner (McLeod, 2014). In the learning activity, the MKO not only pushes the learner to the learning experience, but both individuals are actively involved in the process (Shabani, 2016).

According to Denhere, Chinyoka and Mambau (2013), Vygotsky's ZPD is the distance between what the child can achieve in solving a problem, and what he/she can achieve with the help of someone more experienced through the guidance provided that increases the child's potential. The ZPD deals with the ability that has not yet matured. It is in the process of maturation, and it helps a person develop when they actively participate in the process of solving a problem with the person providing guidance. A ZPD occurs between the learner and the MKO through their social interaction about that particular phenomenon. The MKO creates a ZPD in a learning environment, and provides guidance to help the student learn new concepts and use the available resources effectively (Lee, 2015).

According to Marginson and Dang (2017), Vygotsky believed that the ZPD should be matched with the child's level of development at that given time. In order to understand the development brought by interaction, the teacher needs to determine the actual cognitive level which refers to what a child can achieve or reach at a given time independently without assistance, and the child's potential, which refers to what a child might be able to achieve from receiving the guidance of an MKO at his/her level of development. Lee (2015) argues that the ZPD helps learners to acquire different ways to solve a problem using different effective tools, and not only focusing on the available tools.

The gap of the child's inability to perform a task alone is filled through a ZPD. Learners with disabilities can extend their limitations and achieve more as they compensate for their functional disabilities. The social environment is a source for development, and not

just a context in which a learner grows, and it should provide support for the function of learners with disabilities through their special education (Rodina, 2006).

Through the instruction that the more experienced person imposes, the learners are directed to effective ways to use their mental and physical abilities. One of the reasons learners are seen to be lacking in their academic endeavours is the ineffective instruction they receive (Lee, 2015). Scaffolding is the term used to describe the assistance that the learner or an inexperienced person receives from the experienced person to help the individual solve the problem that he/she could not solve without assistance (Panhwar et al., 2016). Scaffolding is slowly withdrawn as the learner becomes more and more competent to perform that particular task (Denhere et al., 2013).

Mediation is also a concept introduced by Vygotsky to indicate the process that helps human consciousness develop through social interaction using the appropriate tools (Panhwar et al., 2016). This concept indicates that a person does not just interact with the outside world straightaway, but instead goes through the mediated signs and tools. Vygotsky stated that a learner is made to progress through the psychological tools used, and the most powerful psychological tool is language. A learner uses their private speech to facilitate cognitive processes, and it is usually used during a difficult task when children self-regulate their thought as a way to find effective ways to deal with that task (McLeod, 2014).

Denhere et al. (2013) sees mediation as the tool that helps in shaping and guiding the learning process to make it more efficient. According to Eun (2016), cultural tools can be seen in different forms such as a paper and pencil that are used to jot down things to remember, or symbols and psychological tools in the various sign systems such as language. The interactions that take place within the cultural and psychological tools usually occur when the person who has little or no knowledge about a certain cultural tool interacts with a person who has more understanding and knowledge about that cultural tool. From that interaction, the tool's meaning and function is recreated (Panhwar et al., 2016).

### **2.2.3 PHILOSOPHICAL AGENDA OF THE THEORY**

Denhere et al. (2013) stated that the main goal of the sociocultural theory is to keep developing learners through the ZPD by keeping things culturally relevant to them by assigning tasks that are slightly above their level. Through the assistance of the MKO, learners become more competent with those tasks, and their cognition develops.

Knowledge does not automatically appear in the mind, but is something created by people together (Rodina, 2006).

It is important for learners to use psychological tools that are created within their culture in order to understand how human beings do certain things and become competent members of that particular human community. Failure or progress in being competent in various activities depends on the mediation process of using psychological tools (Eun, 2016).

The theory suggests that teachers should impose tasks that students can perform with some guidance. This development of a student can be supported through scaffolding, which involves the organising of ideas in a way that the students can understand, and helps them work faster and more efficiently than they would without that assistance (Denhere et al., 2013).

When a student is separated from culture and community, he/she is missing the most important element of life. Culture and cognition work very well together, and they are interdependent (Panhwar et al., 2016). According to Vygotsky, guidance from the experienced other is very important in the problem-solving process (Denhere et al., 2013). People need to be actively engaged in the practical activity of internalisation as it does not occur overnight (Shabani, 2016).

#### **2.2.4 RELATION TO THE PARTICIPANTS**

The role of the researcher is to inform teachers about how constructive teaching has been effective in assisting teachers in meeting the challenges of enhancing student achievements. It encourages teachers to assume their role as guides, and gives learners the opportunity to engage actively in the learning process by taking responsibility for their own learning. The participants' relationship to the researcher is to assist by providing her with the effective strategies that they use to enhance the participation of learners with ASD, and the challenges they face when they teach those learners.

Hameed and Corresponding (2016) argue that learning process requires the construction and creation of new and unique concepts and ideas, and suggest that sociocultural theory should be involved in the curricula. The participants should be responsible for creating spaces and environments that allow learners to build their understanding in their specific contexts. Vygotsky stated that even professional growth is based on the social context. The teaching context helps the teachers develop their attitudes, competence, skill and knowledge in regard to learners (Shabani, 2016).

Sociocultural theory in educational practice enables the creation of new cultural tools that make for the transformation of power from the authoritative teacher to the learners. After these new cultural tools are created, different ways of using them properly and efficiently keep on emerging (Panhwar et al., 2016). Development that occurs from social interaction has to be constructed through activities with clear goals. These goals can include different things such as activities that require joint problem-solving (Shabani, 2016).

## **2.3 FEATURES OF AUTISM SPECTRUM DISORDER WHICH INFLUENCE LEARNING PARTICIPATION OF LEARNERS**

### **2.3.1 Communication and spoken language**

ASD effects the social communication of an individual (APA, 2013), resulting in learners growing up with limited skill in communication (Tyrrell, & Woods, 2018). Goodall (2015) stated that even though learners with ASD may be present in the classroom, language processing difficulties and complex instruction may make the lesson inaccessible to them, or difficult to be understood. A study by Özçalışkan, Adamson, Dimitrova and Baumann (2017) that compared ASD learners with typically developing children showed that learners with ASD were characterised by delayed word production, and said fewer words. They also showed problems with gestures that provide additional information about a subject, which made their learning more difficult.

Chita-Tegmark, Arunachalam, Nelson and Tager-Flusberg, (2015) stated that ASD usually comes with difficulties in mastering language skills, and decreased processing ability. Learners with ASD engage less in social and communication interaction, which decreases their opportunity to learn new language skills and new words. A study by Mody, Shui, Nowinski, Golas, Ferrone, O'Rourke, and McDoug (2017) also provided evidence that children with ASD showed difficulties in speech, language and the motor domain. Schaaf and Lane (2015) indicated that the impairment in social communication that is found in learners with ASD is found to have a link in their difficulty with sensory sensitivity.

Learners with ASD need special education in order to develop social skills as they cannot acquire them by just being in the society, and their deficit in social skills makes it hard for them to initiate interaction and conversation with other people (Brojerdi, 2017). Personal space is what learners with ASD do not understand, and they invade other

people's personal space as they never understand those people's intentions and emotions, and they struggle to form relationships (Brojerdi, 2017)

### **2.3.2 Sensory sensitivity**

Uljarević, Carrington and Leekam (2016) defined sensory sensitivity as a characteristic that caused an individual to be more sensitive to the different stimuli found in the physical or social environment. The indifferent sensory features can be linked to restricted and repetitive behaviour or activities, and to emotional problems (Green, Chandler, Charman, Simonoff, & Baird, 2016; Tavassoli, Bellesheim, Siper, Wang, Halpern, Gorenstein, and Buxbaum, 2016). Schaaf and Lane (2015) stated that senses such as hearing, taste, movement, smell and pain may appear different in learners with ASD from those in other individuals. People may be affected emotionally or biologically when they experience stimuli that trigger their sensitivity.

Sensory abnormalities are the most common features in children with ASD (Stewart, Sanchez, Grenesko, Brown, Chen, Keehn, & Müller, 2016). According to Little et al. (2015), the patterns of response can be categorised into four clusters, namely; sensory interest, repetition and seeking behaviours which are dominated by a strong interest in or craving for that particular sensory stimulus, which is likely to be repeated in different situations (e.g. being passionate about lights); enhanced perception, which could be a superior ability to recognise a specific sensory stimulus, and only focus on a specific element of that stimulus (e.g. the ability to recognise specific auditory stimuli); hyporesponsiveness, which is characterised by taking long to respond to a sensory stimulus (e.g. decreased reaction to heat); and hyperresponsiveness, which could be avoidant or sensitive towards a specific stimulus (e.g. reacting badly to smell)

The sensory features in learners with ASD are believed to affect their functional performance. Sensory impairment is thought to affect an individual in different ways, and has a debilitating impact such as anxiety, decreased activity level, sleep disturbance and impaired daily living skills. Children with a high level of sensory sensitivity tend to avoid participating in most social situations. Social communication difficulties and limited language and social-adaptive skills are related to hyporeactivity (Schaaf & Lane, 2015). Even though sensory sensitivity is mostly witnessed in children, Fluegge, (2017) shows that it not only affect learners but is also associated with adults who are diagnosed with ASD.

Schaaf and Lane (2015) found that learners with ASD are believed to show differences from their peers in gaze, visual tracking and visual attention, and this problem usually presents itself during social situations, which might be one of the causes of social impairment. Schaaf and Lane (2015) suggest that the decreased connectivity in the sensory perception that is responsible for social-emotional processing may also be the cause of sensory impairment. Sensory integration is less effective in learners with ASD than in typically developing peers. The stimulation caused by sensory sensitivity may bring a feeling of being overwhelmed, making a learner perceive the world as unpredictable. Even simple events may be seen as difficult and uncertain, which will increase the anxiety reactivity (Uljarević et al., 2016)

The sensory sensitivity of learners with ASD is usually measured by the instrument that allows parents to report about it (Little et al., 2015). Sensory perception is measured by the ability of the learner to recognise and interpret sensory stimuli. The measuring includes the examination of the environment with events that usually stimulate sensory difficulties, and from there; assistance is given with the accommodations that can help with differences in the sensations of learners with ASD (Schaaf, & Lane, 2015). Behavioural adaptation is usually affected by the auditory hyperactivities found in learners with ASD which sometimes need therapeutic intervention (Takahashi, Komatsu, Nakahachi, Ogino, & Kamio, 2016).

### **2.3.3 Response inhibition**

Response inhibition is the ability to think before you act. This skill is seen to be very useful for individuals to evaluate the whole situation before they begin to do anything. De Jager and Condy (2017) point out that those ASD learners often have difficulty in ignoring irrelevant information that can come about during communication or social interaction. They are unable to resist the urge to do something instead of waiting for their turn.

In the study by van der Plas, Dupuis, Arnold, Crosbie and Schachar (2016), the whole group with ASD had a problem with slow inhibitory control and attention flexibility. The problem was mostly represented in the auditory information. This shows that an individual with ASD needs more time in auditory activities that require them to stop and change than their typically developing peers, but they could keep up very well in the visual set-shifting task, indicating that individuals with ASD are better with tasks that are visual rather than auditory.

Van der Plas et al. (2016) suggested that stimulants help individuals with ASD to improve their inhibition performance, and believed that the failure to control cognitive dysfunction and deficit in inhibitory control and attention flexibility was somehow linked to the repetitive behaviour symptoms that are found in individuals with ASD. Functions such as inhibitory control, attention flexibility, response speed, and error processing usually influence the performance of cognitive control of tasks in individuals with ASD, which may affect the person's ability to do the task efficiently.

#### **2.3.4 Task initiation**

De Jager and Condy (2017) described task initiation as the ability to know how you will start the task, and the effort level needed to complete the task, such as starting it without unnecessarily procrastinating. Learners with ASD may know they need to initiate a task, but they may have difficulty in following instructions or using appropriate strategies (Sparapani, Morgan, Reinhardt, Schatschneider, & Wetherby, 2016). The authors found that with learners with ASD, time spent on a task was limited. The study by Carmo, Duarte, Souza, Pinho and Filipe (2017) gathered information about the deficit that individuals with ASD present during a task's initial period as a verbal instruction task. Learners with ASD may face a challenge in processing various information simultaneously, but they are proven to do better in following one task command at a time (Camargo et al., 2016).

Smith, Ayres, Alexander, Ledford, Shepley, and Shepley, (2016) suggested that self-instruction might help. Self-instruction is when an individual uses materials or tools that will help him/her complete a task, such as steps to follow, or the problem broken down into easier units. Self-instruction material has proved to be effective in helping an individual improve his/her ability to complete a task that he/she previously had difficulty with. He/she can even use a video model that teaches him/her how to perform a task, and support from an adult is not needed. This is an opportunity to help an individual learn to perform different kinds of skill without needing an adult to give instruction for each skill. One of the important key elements of decision making is the response initiation. The dysfunction in decision making has been seen as a major factor in ASD (Carmo et al., 2017)

#### **2.3.5 Interpersonal interaction and relationships**

Social interaction may lead to the development of interpersonal relationships. Social interaction deficit is the most primitive characteristic of an individual with ASD. The lack

of social skill in that individual may lead him/her into avoiding social interaction, which decreases their chances of developing social, cognitive and language skills (Camargo et al., 2016). However, the insufficient language skill that learners with ASD have affects the relationship they have with their peers, which contributes largely as a barrier to social gathering, which in turn reduces their opportunity to learn from social interaction. Social interaction impairment affects their ability to learn by observing others, as they lack interaction skill.

The lack of early intervention from the children's caregivers can have an influence on their impairment in social interaction as caregivers are supposed to equip their charges with the skill to respond correctly to social interaction (Godin, Freeman, & Rigby, 2019). The easily visible sign that the learner is not socially motivated is shown by impairment in joint attention, which may result in a decreased level of interest in engaging with others in social interaction. A deficit in social reciprocity may cause difficulties for learners with ASD in playing with others (APA, 2013). The failure to imitate the use of social skills at an early age may influence the deficit in development of advanced social communication skills. Godin et al. (2019) showed that children with ASD may have a problem with the ability to be imaginative and pretend. Their play tends to be tense and focused on sensorimotor ability and repetitive behaviour, which results in their expressing themselves literally, which makes it hard to play with a typically developing peer

Humour and laughter are important phenomena which show the element of playfulness, and they are very important for the development of interpersonal skills. Godin et al. (2019) provide evidence that humour in children with ASD is scarce. The children's inability to understand verbal and nonverbal cues and the use of gestures and intention makes it hard for them to playfully engage and socially interact with others. According to Goodall (2015), friendship is the most important thing in children, and the lack of friendship can harm a child as he/she needs his/her peers' support; without it, emotional distress may increase. Poor social skills can lead to social anxiety, Brojerdi (2017) stated that children with ASD do want to interact with others, but they are not equipped with the necessary skills to do so as they have difficulty in understanding other people's feelings

### **2.3.6 Inflexibility**

Uljarević et al. (2016) define inflexibility as a way of reacting to the uncertainties of everyday life that is expressed by cognitive, emotional and behavioural reactions. Inflexibility has been found to be strongly linked to symptoms such as anxiety, social

withdrawal and worry. The deficiency in producing goal-directed actions can be due to the lack of appropriate processing to reach decision making (Alvares, Balleine, Whittle, & Guastella, 2016). The significant impairment caused by the inflexible behaviour may cause distress to the individual as well as his/her caregivers (Mostert-Kerckhoffs et al., 2015).

To function and adapt successfully it is important to know the appropriate behaviour for the changing environment, and have the ability to remain flexible. Inflexibility is failing to implement such necessary behaviour or actions, and this is one of the characteristics of ASD (Alvares et al., 2016). The aim of the study by Alvares, et al. (2016) was to investigate the goal-directed action flexibility control in individuals with ASD. The results from this study suggested that the inflexible behaviour in ASD may influence other clinical symptoms of ASD. The findings suggest that the preference for sameness and behavioural inflexibility in individuals with ASD may be related to their failure to integrate newly learnt information that helps to make behaviour more flexible.

## **2.4 PEDAGOGICAL PRACTICES THAT ENHANCE LEARNING PARTICIPATION IN LEARNERS WITH ASD**

### **2.4.1 Applied behaviour analysis**

According to Furman and Tuminello (2015), applied behaviour analysis (ABA) is a branch of psychology, and is based on behaviourism by John B. Watson and B.F Skinner. In ABA, behaviour is modified by influencing the person's environment. ABA is based on science, so it uses an open-minded approach that will have positive outcomes (Leaf, Leaf, McEachin, Taubman, Ala'i-Rosales, Ross, & Weiss, 2016) and is used to deal with social issues of the individuals (Trump, Pennington, Travers, Ringdahl, Whiteside, & Ayres, 2018). ABA is used to target specific behaviour with the goal of manipulating it as a way of developing social communication and adaptive functioning (Fani-Panagiota, 2015).

ABA consists of various procedures and practices that have been proven to be effective (Trump et al., 2018), It targets the behavioural and educational element of an individual. The programme under ABA uses positive reinforcement to teach learners with ASD various skills. Despite the abundant information about ABA used for a range of children with disability, it has become widely used in interventions for learners with ASD.

Techniques from behavioural analysis encourage the use of natural reinforcement, and teach learners to wait for their rewards. Reinforcement is a term used to describe the stimulus that has a chance of increasing the response. According to Trump et al. (2018), positive reinforcement is the introduction of a stimulus that is likely to produce a response of that particular behaviour. Reinforcement can be anything that brings positive feeling to the individual; such as money, praise, and stickers.

ABA also uses punishment to prevent the undesired behaviour from occurring again. Punishment can be the removal of the desired stimuli or object after the display of the undesired behaviour to decrease the likelihood of the undesired behaviour reoccurring (Kodak, Cariveau, LeBlanc, Mahon, & Carroll, 2018). The existing literature on assessment and intervention for children and adolescents with ASD has proven that ABA can be beneficial to use for educational and behavioural treatment.

When ABA is implemented for a specific learner, it is important to consider learning variables that may affect the learning process of the child, which could include motivations, responsiveness, and behaviour that will indicate the emotional state of the learner (Leaf et al., 2016). The analysts create strategies that are based on the past and present performance of the learner. The study conducted by Leaf et al. (2016) indicated that implementing ABA instructions in a group setting proved to be beneficial for learners with ASD in different ways. Firstly, the instructions format given to the group setting tends to increase the opportunity for learners with ASD to develop skills in academic, social, language and other areas. Secondly, group instruction gives the learners the ability to learn from observation, and they can use that skill and perform a task without requiring direct instruction. Thirdly, group instruction is similar to a school setting that gives learners the opportunity to make generalisations in a future setting and environment. Lastly group instruction can help improve the children's social skills.

The research suggests that teachers should use the in-the-moment analysis for the behaviour displayed by the learners to analyse the effective reinforcements. In the moment reinforcement entails the teacher making an ongoing decision about which stimulus will trigger response and can be used as a reinforcement; and once the reinforcement is identified, he/she needs to make continuous observations to check the effectiveness of that reinforcement throughout the learning process. Leaf et al. (2016) stated that the teacher could be observing factors such as the learner's affect, the learner's interaction with the stimulus, the stimulus that the learner has experience with,

and the motivation level. and check these factors' impact on the reinforcement's effectiveness.

Behavioural techniques use data collection procedures that will be suitable for that targeted specific behaviour, and the context it may occur in. ABA does not believe that one size fits all, and suggests that the data should be relevant and collected by the stakeholders, who know the learner better. If ever it is noticed that the intervention implemented is ineffective, then a new intervention is developed that seems to be effective for the learner (Trump et al., 2018). Each individual is unique in his/her own way.

Research investigating the usefulness of ABA in learners with ASD proved to be effective by having high positive effects on learners in their social settings. It is important to use the behavioural principles that will be beneficial to the learner, as each learner with ASD differs (Camargo et al., 2016). The instruction formats in the implementation of ABA can be done in different ways, which can be given to an individual or a group. The core element of ABA is reinforcement as it is beneficial in creating and maintaining the desired behaviour of learners (Trump et al., 2018)

Early intervention of ABA increases the chance of learners with ASD developing intellectually and becoming socially adjusted children (Furman, & Tuminello, 2015). Behavioural therapy helps with training learners with ASD in the appropriate way to behave. Behaviour management focuses on eliminating undesired behaviour and encouraging desired behaviour (Brojerdi, 2017). ABA has been proven to be effective even in learners who are not able to talk; the schedule is based on the children's interest, and skills are taught step by step (Brojerdi, 2017)

### **2.4.2 Video modelling**

According to Alzyoudi, Sartawi and Almuhiiri (2014), video modelling is used as an instructional technique, and has been used to teach many learners with disabilities such as ASD. Evidence shows it to be effective in helping learners develop a set of skills. Characteristics of ASD limit the learners' enjoyment of recreational activities that are not in their home setting. Children with ASD have shown strength in areas of attention and visual perception, and video modelling has been proven to be helpful in such learners. The visual element of the video makes it interesting for the learner; it is a motivator and can be reinforcement for the learners. Spriggs, Gast and Knight (2016) indicate that

ASD learners prefer visual stimuli and show more strength in visual perception than with auditory stimuli.

The use of video modelling has been proven to be effective as it provides the learners with self-instruction and allows decreased support from the caregiver (Smith et al., 2016). Video modelling gives the child the opportunity to grow his/her level of independence. Research shows video modelling to be beneficial and effective for teaching learners with ASD as it includes the visual element, which is observation learning. Observation learning is when a child changes his/her behaviour, and displays the behaviour that is observed in others (Spriggs et al., 2016). This learning can occur in a process of observing and doing. In order to successfully imitate the behaviour the child is observing, he/she needs to be able to pay attention, learn and imitate (Bandura, 1977)

Spriggs et al. (2016) described recreation as the activity that a person engages in for satisfactory reasons, and leisure as the perception that person has about the freedom he/she has to choose to engage in meaningful experiences. Unfortunately, learners with ASD lack recreation and leisure skills, even though these are important to everyone.

The provision of modelling from videotape comes from social learning theory by Bandura (1977). According to Alzyoudi et al. (2014), it has been shown to be effective in helping the development of social skills in the following ways

1. Modelling with video – This is when the learner watches the video and observes certain sets of behaviour displayed by the people in the video that he/she is then required to repeat.
2. Feedback with video – This is when a learner is given the opportunity to watch himself or herself unedited in the video, and required to observe the appropriate and inappropriate behaviour. Then the behaviour observed is discussed with the teacher, to find ways it could be altered in the future.
3. Cue with video – This is when the learner's role model in the video gives a cue to the learner to perform a skill that has been displayed in the video, so that the learner is actively involved in the process.
4. Computer-aided video teaching – This uses multimedia such as text, graphics, sound, etc. to make the learner easily understand.

This research by Alzyoudi et al. (2014) was used to investigate the effectiveness of using video modelling as an intervention to teach social skills to learners with ASD. The positive result of this study could be due to reinforcing factors that the video modelling has, as most of the children enjoy watching movies. If watching a video is perceived as rewarding activity, then there is a high chance that the child will be motivated to watch it again, and try to imitate the behaviour displayed in it. This study also suggests that a video can give relevant cues to the child to produce the desired behaviour.

Video modelling usually provides rapid skill development that can be used in different settings. This is proven to be beneficial to learners with ASD as they may face difficulties of generalisation if they are using other methods. The implementation of enjoyable activity in the classroom may make teachers more motivated as it will increase the learners' attention to and imitation of the video, and more learning can take place (Alzyoudi et al., 2014).

Even though video modelling has proved to be effective, it seems to be expensive, and requires a lot of time in implementing it (Camargo et al., 2016). In the video modelling, the actor performs the desired behaviour before the learners it, and then they are able to understand how that behaviour is displayed (Brojerdi, 2017; Nind, Kilburn, & Wiles, 2015). Video stimulation can be beneficial in teachers in terms of reflecting on their effectiveness in their teaching methods. This includes taking the video of a teacher teaching, and then later analysing it to see if there is anything that he/she missed or could improve.

### **2.4.3 Games**

Finke, Hickerson and McLaughlin, (2015) have suggested that video games have proved to be beneficial in the teaching and learning process. The quality of the games also influence their effectiveness. They can be used as intrinsic motivators without expectation of other reward. Finke et al. (2015), suggest that the reason video games are good in teaching is because they motivate the learners to engage in new learning activities. Playing video games can be useful in learning different skills that can be used to learn in school. Learners both with and without disability are motivated to play video games.

Video games can be very motivating in children when their parents come to support them. Parents in the study by Lu et al. (2018) indicated that video games have been beneficial to their learners with ASD, and they have helped in their development of skills

in different areas. Serious games are designed for the purpose of teaching skills of problem solving rather than those which are just for entertainment. The serious games are usually found in fields such as education, the military and medicine. The benefit of these serious games is that they have proved to be beneficial in helping learners learn effectively about a specific environment without having to be physically present in that environment. It also has a high element of motivation that is included in the learning process (Lu et al., 2018).

The study by Finke, et al. (2015) suggests that the parental attitude to video games has influence on the outcome being negative or positive. Parents who have a positive attitude towards video games as interventions were found to also be video players themselves, and they would engage in playing the games with their children. Video games are proven to be positive for learners with ASD as they give them something to talk about to their peers.

This study by Lu et al. (2018) evaluated the effectiveness of the virtual pink dolphin. The virtual pink dolphin is one of the games that are used to teach children with ASD skills in areas such as shapes, numbers, colours, words etc. from the experiment conducted to analyse the effectiveness of the virtual pink dolphin. The results show the game to be effective in teaching learners with ASD things such as following direction from the avatar, and giving direction to the dolphins.

The study conducted by Tang, Falkmer, Chen, Bölte and Girdler (2019) wanted to obtain suggestions from the youth diagnosed with ASD and professionals about implementing a serious game. This study highlighted the importance of considering both sides when designing a serious game so that both can contribute in creating a successful game.

#### **2.4.4 Child's preference**

Keen and Pennell (2015) stated that many intervention strategies have involved the identification of the preferred items and activities, and then been used to increase the motivation of learners with ASD. Once the preferred items or activities are identified they are then used in instructions as a reinforcement to increase the child's interest. There is evidence that providing reinforcement at the same time as the desired behaviour is linked to a rapid behavioural change (Keen, & Pennell, 2015). Pairing the preferred items with learning activities has proven to provide reinforcement. Checking the preferred items involves assessing the amount of time a child spends engaging with an item.

In the study by Keen and Pennell (2015), one of the ways of checking the preferred items was to give each child one toy out of seven for two minutes at a time, and a video was recorded for later analysis. Analyses were based on the amount of time the child interacted with each toy, and toys were ranked from most liked to the least liked, the most interacted with being the most liked. However, the researchers stated that there is still a need in research to determine different ways in which the preferred items can be used to maximise the learning and engagement of learners with ASD. Being able to determine the ways to engage learners is important, and this study suggests a need to consider ways of measuring engagement, and how to integrate it with the learner's preference. Intervention that educators and therapists use to engage learners with ASD should be fun and interesting to learners.

#### **2.4.5 Social story**

The use of technology is likely to motivate learners with ASD to engage in activities. These tools can be used to teach several skills (Sani-Bozkurt, Vuran, & Akbulut, 2017). A social story can be easily accessed from mobile devices, and it could be used to teach in the special education practice. The pairing of verbal and audio-visual communication helps learners with ASD develop a relationship between them as a model of them both is created in their minds. Researchers suggest that a social story is reader-friendly and entertaining as learners are able to engage with the story (Sani-Bozkurt et al., 2017).

The interaction with different content in multimedia such as text, graphics, sounds and videos keeps the learners motivated and interested. There is easy learning because rather than just watching the content children are able to interact and actively manipulate it in their preferred ways. Multimedia applications have materials that are interesting and effective for interaction. The short stories are in a format that deals with specific social rules and different appropriate ways of dealing with different situations (Sani-Bozkurt et al., 2017).

The social stories can be merged with multimedia, giving the children the opportunity to start, stop, pause, create, and edit, which will give them a more enthusiastic way of learning. The navigating through the multimedia tools of learners with ASD will be based on their preferences along with their responses to different types of stories. In that way they will be actively involved in selecting relevant materials. The social story content is based on trial-and-error, giving children a safer place to learn than in real life (Sani-Bozkurt et al., 2017). The understanding of human body language and unwritten social skills is taught through social stories. These social stories are sometimes personalised

for learners for them to understand social rules, and the story is repeated till they are able to understand the behaviour being taught (Brojerdi, 2017)

#### **2.4.6 Treatment and education of autistic and related communication handicapped children (TEACCH)**

TEACCH focuses on helping a child build his/her own unique strengths that will assist him/her in being successful. It helps train learners in different areas such as social skills, leisure skills and communication skills as it uses structured teaching. According to Fani-Panagiota (2015), TEACCH usually targets four components, namely, (a) physical environment, (b) predictable sequences of activities, (c) visual schedules, and (d) systems of work/activities. The most important element of TEACCH is forming a relation with the ASD learner and the professionals that assist him/her.

With the TEACCH model, daily activities are made predictable by using visual support and keeping the physical environment of the class structured. In the study by McCloskey (2016), implementing TEACCH involved providing each learner with his/her own personal space with the material that was appropriate and relevant to him/her, and there was limited social interaction during class time.

Sun, Zou, Zhao, Xia and Wu (2016) emphasised early intervention to be a positive outcome usually provided by TEACCH. This intervention programme was designed to help people of all ages diagnosed with ASD to improve their communication skills, sensorimotor skills and independence while reducing their challenging behaviour. The major component of TEACCH is the structured teaching.

Goodall (2015) found the use of TEACCH to be beneficial in terms of improving self-help, social and communication skills, which are characteristics lacking in those with ASD. TEACCH has a positive element in decreasing the dysfunctional behaviour and stress level in parents as well. It can be implemented both in mainstream and special schools, which can help every learner regardless of the school. It focuses on creating situations that bring about the routine, predictability and organisation which is strongly preferred by learners with ASD.

## **2.5 NECESSARY ARRANGEMENTS SENSITIVE TO LEARNING PROFILES OF LEARNERS WITH ASD**

### **2.5.1 Individualised education programme**

Marder and de Bettencourt (2015), define an individualised education programme (IEP) as an intervention strategy, instructions format or teaching programme that has a positive outcome for learners when they are being tested. Teachers can implement an IEP, and then evaluate the effectiveness of the changes made. For the education system to be improved it requires educators to provide practices that are evidence-based and believed to be effective for learners.

According to Kodak et al. (2018), the majority of learners with ASD require their own specialised IEP. In an IEP, skills are broken down into small units that are easy to understand until a person is able to master them. Slade, Eisenhower, Carter and Blacher (2018) stated that the development of an IEP is the educational right of every learner with a disability, which emphasises the importance of the parents' involvement in the teaching plan that is created for their child. An IEP involves the learner's goals and the different accommodations that will be implemented to try to help achieve those goals, and this must be done with the parents' involvement. Each learner with ASD requires his/her own uniquely individualised plan that will be beneficial in providing the necessary support for each individual (Corona, Christodulu, & Rinaldi, 2017).

Teachers can choose the intervention strategies based on their prior knowledge, their preferences, and the experience they have with learners with ASD. The training level and type can also influence which intervention they choose (Kodak et al., 2018). Teachers may also select interventions that they have used in the past with other learners. Sometimes they use the one from their training programmes, those required by the state (Kodak et al., 2018).

IEPs are designed to match the needs of each individual (Alotaibi, & Almalki, 2016). Keen, Webster and Ridley (2016) stated that there is a need for psychologists and educators to evaluate the education programmes to ensure that they best reflect an individual's strengths, and facilitate academic learning. Sometimes an unsuccessful IEP has been proved to influence teachers' burnout, which may affect the ongoing learning process for learners with ASD (Wong, Ruble, Yu, & McGrew, 2017). Slade et al. (2018) mentioned one of the barriers that may limit the parents' involvement in the creation of

an IEP is the perception of the parent as lacking subcultural understanding, which leads to mistrusting the “school stuff.”

### **2.5.2 Collaborations**

A healthy relationship between the stakeholders will provide positive support to the learner who requires encouragement and reinforcement to continue. The working together of the parent and teachers can help the child feel that they are part of a very strong support system, with both sides providing mutual support (Syriopoulou-Delli, Cassimos, & Polychronopoulou, 2016)

However, raising a learner with ASD can be very stressful for parents as it may affect their times of management and arrangement compared with other children without disability. These unpleasant experiences may affect their level of involvement in the family system (Mandak, & Light, 2018). The collaboration between the parents and teachers is very important.

The study by Syriopoulou-Delli et al. (2016) shows that the majority of teachers believe that the way to understand the children’s educational needs is to involve the parents, and it can be beneficial to have communication between the two parties. The teachers also believe that the collaboration can be positive in different ways, such as identifying different ways of handling challenging behaviour displayed by learners with ASD. In the aforementioned study, the majority of the parents (92%) indicated that they can see improvement in their learners’ school performance owing to the communication and collaboration between parents and teachers.

The majority of teachers that worked in the special school reported that the communication between parents and teachers is perceived as a positive reinforcement to the learner, as it increases their self-esteem. Communication can help the parents to clearly understand their role at home in helping their child, and how this may influence the child’s performance at school. The parents also understand the different ways that they can help their children with their regular study routine (Syriopoulou-Delli et al., 2016).

The best intervention practices are based on each individual, as children are not the same. The interventions must be made according to the family’s and the child’s needs. Involving the child’s family may be helpful as they are the people who know the child better than anyone (Mandak, & Light, 2018). During this communication between the teacher and the parents the goals for the child are clearly identified and explained, and

what is expected from each party to ensure the ways the child can achieve those goals is clearly communicated (Syriopoulou-Delli et al., 2016).

During services that are family-centred, families are given the chance to make decisions about the intervention plan that they find suitable for their child. This service model is derived from a theoretical framework that emphasises the importance of the family having influence over the child (Mandak, & Light, 2018). Family system theory (Cross & Barnes, 2014) recognises the importance of the family members involvement as they are all interrelated. It is also important to outline the importance of the needs of the whole family, not just those of the child with a disability.

This communication is perceived as conversation between equals who are dealing with the same problem, just from different angles, and they should join their strategies without feeling as if they are in competition. This collaboration is strictly developed to ensure that there is appropriate development of an individual education programme (Syriopoulou-Delli et al., 2016). Participatory practices are those practices that are individually designed to be effective for that particular family's needs. This practice involves family in the decision making while using the family's strengths to help keep them actively involved (Mandak, & Light, 2018).

Schiltz, et al., (2018) suggest that parents' distress about their child's development and lack of involvement in their children has been proven to be a contributing factor in the child's challenging behaviour. When parents are not involved they can become very frustrated with the professionals, and that might cause a difficulty in developing a family-professional relationship that will be beneficial to the child. The lack of this relationship may be harming the child. Family is advised to use existing knowledge about the child and his/her capability, and make decisions about the suitable resource and support system for their child (Mandak, & Light, 2018)

Given the clinical symptoms of ASD, it is best to understand its effects at home as well as at school. Parents' participation in decision making is the most important element. Literature around this area (Azad, & Mandell, 2016) suggests that parents are not satisfied with the communication they have with teachers. The communication level usually drops as the child grows up. Elimination of the communication may be caused by lack of agreement about the child, and the inability of each individual to voice his/her concerns. The way teachers respond and manage challenging behaviour may be influenced by their perception of its causes (Khasakhala, & Galava, 2016).

The training received by teachers provides little or no information about the different ways of dealing with parents. It is the same with the education programme that parents receive. It does not highlight the importance of communication and interaction (Azad & Mandell, 2016). There is a chance that parents and teachers do not reach the level of communication and interaction that is necessary to talk about the difficult and serious emotional distress or concerns they have.

### **2.5.3 Highly trained staff**

Marder and deBettencourt, (2015) suggest that there should be checklists that can be used as feedback in the implementation of the best teaching strategies. The teachers' training should ensure that future teachers are provided with tools and resources that can be used to evaluate the effectiveness of IEPs, provide the quality training that will help with implementing different strategies, and ensure that there is a growing research field in terms of the best ways of teaching. Syriopoulou-Delli et al. (2016) stated that teachers with postgraduate qualifications have the ability to enlighten parents on the important issues that might be beneficial to the child, such as communication techniques and emphasising the development of the child's language skills.

Further training programmes for teachers would be beneficial in providing opportunities to practise implementing evidence-based strategies with children with ASD that keep displaying challenging behaviour (Kodak et al., 2018). Goodall (2015) indicated that in order for a practitioner to understand the range of the available intervention, they would need to be involved in ongoing professional development. The level of training is associated with the level of self-efficacy that teachers have in working with learners with ASD. There is a need for quality training for the school professionals working with learners with ASD (Corona et al., 2017). The quality of training in individuals working with these learners has been proved to be effective in dealing with problems such as deficits in social communication and interaction.

Corona et al. (2017) stated that teachers working with ASD children not only have to know about ASD, but they also need to be efficient in implementing the strategies for dealing with it effectively. If teachers are trained in this area they are more likely to develop confidence in the competencies they hold in working with learners with ASD. Increased self-efficacy in teachers has proved to be effective in learners with ASD. Teachers and learners should be given enough time for professional growth that involves various trials and errors, and cannot occur overnight as it is a long process that requires time and commitment. Teachers have to reflect on the skills that they have

learnt in an appropriate setting to see the most effective way of implementing them. Attending more training programmes helps teachers to continue developing and changing their educational practices to best suit the learning process (Shabani, 2016).

#### **2.5.4 Early intervention**

The main goal of early intervention is for individuals to achieve evidence-based intervention that will provide best practices that will have positive outcomes. A child with ASD can be diagnosed as early as two years old, and the behavioural changes begin around that age too. It is crucial to identify the disorder before there is too much damage (Alotaibi, & Almalki, 2016). The early life of an individual has a strong influence on his/her future behaviour. Early intervention has been proved to be effective in learners with ASD to help them not be left behind. It can help in providing the necessary support that is required in that particular developmental stage (Alotaibi, & Almalki, 2016).

Alotaibi and Almalki (2016) stated that early detection is important in achieving goals of the interventions necessary for children with ASD. Early detection helps by choosing the developmental intervention that is appropriate for that particular age, as younger children differ from older children in terms of their deficits in communication, social relationship and cognitive process. With the appropriate intervention the ASD symptoms are dealt with to ensure that the child is not too different from children without ASD. Early intervention can help by providing parents with the role that they need to play and different ways to integrate learning opportunities for learners with ASD (Alotaibi, & Almalki, 2016). A study by Huijnen, Lexis, Jansens and de Witte (2017) discovered that early therapy and intervention has been effective in providing support to individuals with ASD and ways of coping with this disorder.

Early intervention has been found to have a positive outcome for children with ASD. A study was conducted to investigate the benefit of early behavioural intervention for children between 18 and 30 months old who are now six years old, and the results proved to have some positive gain in the area of intellectual ability, adaptive behaviour, ASD symptoms and challenging behaviour (Estes et al., 2015).

Carr and Lord (2016) study wanted to find ways to promote the participation of poor families in establishing intervention for their ASD children. The researchers emphasised that the early intervention programme for learners with ASD should also be available for families from poor backgrounds with limited resources. The study indicates that many poor families have trouble getting early intervention since early referral is not available

in poor communities. The way the parents perceive symptoms and communicate these symptoms to a professional may be different since their cultural background may influence their interpretation of the symptoms.

The earlier parents know about the different ways to take care of their children with disability, the more this will lead to an understanding and accepting of the child by the community. Early intervention ensures that social services provide the community with the best programme. This early intervention can also help the parents and teachers to understand the learners at an early stage. Once they are understood they can be taught using an educational curriculum that is assisted with accommodation and modification to make it relevant to learners with ASD. Learners with severe disability can be easily provided with a special education programme. Early intervention helps to target the specific impairment before there is too much damage. Alotaibi and Almalki, (2016) stated that families have positive experience because of early intervention, as there is service delivery to their homes, and involvement of parents in intervention.

## **2.6 SUMMARY**

In Chapter Two the researcher has elaborated on the relevant chosen theoretical framework, which is sociocultural theory. The theory informed the researcher of the process of cognitive development, as it focuses on learners with disability. The literature review clarified the objectives of the study. There was more exploration of ideas that can enhance the learning participation of learners with ASD to assist teachers in maintaining them in a classroom.

## **CHAPTER THREE**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.1 INTRODUCTION**

This study was conducted to investigate the different strategies that can be used to enhance learning participation in learners with ASD. This chapter discusses the methodological procedures that were used to collect and analyse data to answer the research questions. For a research study to qualify as trustworthy, the recording needs to be carefully evaluated, and all the procedures used to collect and analyse data need to be explained so that the reader can decide if the research is valid (Nowell, Norris, White, & Moules, 2017). The researcher followed research methodology steps which are explained in detail below,

#### **3.2 RESEARCH PARADIGM**

A paradigm is a different way of thinking that the society has about the world they live in, including moral values, beliefs and attitudes (Kelly, Dowling, & Millar, 2018). It is used in educational research to give meaning to the data collected; and is based on the perspective that the researcher uses to understand the research data (Kivunja, & Kuyini, 2017). A paradigm can also be seen as a lens used by the researcher to view the world. People usually present different world views, and the reality of those world views are understood through a research paradigm (Rehman, & Alharthi, 2016).

##### **3.2.1 Interpretivism**

The researcher adopted the interpretivist paradigm to investigate the understanding of the participants' viewpoints. The chosen research discipline was provided with methodological procedures to investigate the agreed ways that the community have (Kelly et al., 2018). The researcher investigated the understanding and experience of teachers to be able to discover their reality in their answers to the research questions (Thanh, & Thanh, 2015).

Each individual has his/her own reality based on his/her experiences and his/her understanding of those experiences (Ryan, 2018). The interpretivist paradigm also emphasises the significance of understanding the context of the participants to have a full understanding of the data collected (Thanh, & Thanh, 2015; Kelly et al., 2018). The participants were given a chance to communicate their own perspectives and

experiences based on the interactions they had with learners with ASD. The interpretivist paradigm allowed the researcher to fully understand the perceptions of teachers in their own context – understanding that was used to interpret the gathered data.

### **3.3 RESEARCH METHOD**

McCusker and Gunaydin (2015) stated that a qualitative research method focuses on understanding the experience and attitudes of people about the phenomenon of interest. It looks at how people perceive a certain situation or issue. A qualitative research method aims at answering the “what”, “how” and “why” of the topic of interest rather than asking “how many” or “how much”, which is usually answered by quantitative methods. Qualitative research is about putting oneself in someone else’s shoes and seeing the world the way the other person sees it (Sutton, & Austin, 2015).

The most important role of the researcher is to stay true to the participants when managing the data and following an accurate process of collecting them, as they will be used for analysis at a later stage (McCusker, & Gunaydin, 2015). To understand the phenomenon of interest, the researcher used qualitative methods to investigate the teaching and learning process of learners with ASD in their natural setting, and to bring the information of each unique participant’s experience together (Crowe, et al., 2015; Kallio, Pietil, Johnson, & Kangasniemi, 2016). Qualitative research assisted the researcher to better understand the experience and thoughts of the participants, and the meaning they ascribed to their experiences (Sutton, & Austin, 2015).

#### **3.3.1 Sampling design**

A sample is a unit of a population, and it depends on the type, nature and purpose of the study that will lead a researcher to choose a particular technique (Etikan, Musa, & Alkassim, 2016). Gentles, Charles, Ploeg and McKibbon (2015) defined sampling as ways of selecting units of the population in order to be able to answer the research question. Using the qualitative research approach, the sample was drawn to address the research objectives. Sampling included searching for individuals with in-depth understanding of the phenomenon of interest (Duan, & Hoagwood, 2015; Ilker Etikan, Sulaiman Abubakar Musa, 2017).

There are different sampling techniques, and the researcher used the purposive sampling technique to select the sample. Purposive sampling is one of the nonprobability sampling techniques. Unfortunately, the data from this sampling cannot be used to represent the whole population as the researcher subjectively selected

participants who were teachers of learners with ASD from a resource centre in the Pinetown District (Etikan et al., 2016). The purposive sampling technique is sometimes called judgement sampling as the researcher deliberately chooses the participants for the study based on certain characteristics they possess. One of the advantages of purposive sampling is that it is able to use limited resources to investigate efficiently (Duan, Bhaumik, Palinkas, & Hoagwood, 2015).

The researcher decided on elements to include in selecting the sample, and only chose people that were relevant in addressing the research questions (Etikan et al., 2016). This involved identifying people who had experience with this phenomenon, so not everyone had an equal chance of being selected (Palinkas et al., 2015). The participants in this research included seven teachers who, as mentioned above, had experience in teaching learners with ASD in a resource centre in the Pinetown District. Using the purposive technique, it was important for the researcher to understand the context of the participants to be able to easily relate to their experience (Bungay, Oliffe, & Atchison, 2016).

### **3.3.2. Criteria for selection of participants**

The researcher selected the participants based on the following criteria, the participants needed to meet:

- The participants had to be educators by profession, and employed such at the time of the study.
- The participants had to have experience as teachers of learners with ASD.
- The participants had to be from the selected resource centre in the Pinetown District.
- The participants had to be willing to communicate their experiences.

### **3.4. DATA COLLECTION**

According to Ness (2015), during the collection of data the researcher operates between different worlds, the researcher's world and the world of the participants, so it is important for her to report only on the world of the participants. The collection of data was planned based on the purpose of the study. The researcher reported only the thoughts and feelings of participants, using the semi-structured interview schedule and

observation to collect the data as they provided adequate information for understanding the phenomenon of interest.

The data collection process involves handling a lot of data. An audiotape recording device was used in the process of collecting data, and the data were then transcribed verbatim so that they could be easily accessed and understood before the analysis was conducted. The researcher also had field notes which were informal and handwritten to help her remember, when she analysed the data, the context, environment and non-verbal cues that could not be grasped by the tape-recorder (Sutton, & Austin, 2015).

### **3.4.1. Semi-structured interviews**

Semi-structured interviews are a suitable and flexible method to collect data from a small population using the qualitative approach. They allowed the participants to be able to express themselves more clearly while the researcher guided them to keep to the topic.

The interviews were conducted in one structured way whereby the researcher asked the participants the same questions so that they (the questions) could be accurate, and to make sure that the information was only about the phenomenon of interest (Fusch, & Ness, 2015). The semi-structured interviews were conducted face-to-face in a place with little distraction, and where the participants were comfortable (Pathak & Intratat, 2012). Each interview took approximately 50 minutes.

### **3.4.2. Observation**

Observing is one form of assessment that can be used for educational planning procedures. There are limited communication skills in learners with ASD (Clifford, Hudry, Brown, Pasco, Charman, & PACT, 2010). Observing them in their natural setting is very useful for obtaining in-depth information. They behave differently in front of strangers, and they are uncomfortable if their routine changes. The researcher observed the learners in their natural setting to get a better understanding of the teaching and learning process. She also avoided any action that could trigger discomfort in learners with ASD, so she did not engage with learners.

## **3.5. DATA ANALYSIS**

Data analysis is about organising all the data collected to make sense of their meaning. It also assists with summarising and gathering data into understandable themes for easy reading. Data analysis is a crucial stage, and its procedures need to be handled with

precision and truthfulness. After the data collection is over, data analysis begins to be able to reach conclusion and understanding.

Values, bias and perspective are impossible to ignore. Sutton and Austin (2015) suggest that it is essential that the researcher is aware of his/her own subjective influence and reports on it, so that readers can understand through which lens the data were collected, analysed, interpreted and reported. To make the data comprehensible, the researcher used thematic analysis to search for themes so that the understanding and experiences of teachers of learners with ASD from the teachers' perspective could be reached (Sutton, & Austin, 2015).

### **3.5.1. Thematic analysis**

Thematic analysis is one of the methods used in qualitative research. It can be useful in producing skills that could be used in other data analysis of qualitative research (Nowell et al., 2017). Thematic analysis can be used to identify, analyse, organise, describe and report themes that are found from the data being analysed, and following these steps can help produce a trustworthy and insightful conclusion (Nowell et al. 2017).

The entire data's patterns of meaning were understood using thematic analysis (Percy, Kostere, & Kostere, 2015). Thematic analysis was useful in understanding individuals' different worldviews, and it helped with identifying similarities and differences in the data. It directed the researcher to produce and organise strong results as it uses a well-structured approach for handling data (Nowell et al., 2017).

According to Nowell et al. (2017), the following steps are used to analyse data using thematic analysis.

#### **Phase 1: Familiarising yourself with your data**

The raw data should be presented and kept safe so that they can be used for data analysis. The first step is about getting insight from the data. The researcher needed to engage with the data, which required reading and rereading them until she was familiar with them (Terry, Hayfield, Clarke, & Braun, 2017). When she was familiar with all the aspects of the data, only then could she move to the next stage. She transcribed the data from a tape recorder to Microsoft Word for easy reading and understanding.

## **Phase 2: Generating initial codes**

The second stage involves the gathering of codes from data, and this required the researcher to keep on revisiting the data. A systematic and meaningful method was used to organise data and to reduce them to manageable units using codes (Maguire, & Delahunt, 2017). All items of the data were handled with care and scrutiny. The researcher generated codes so that they could be analysed for possible themes.

## **Phase 3: Searching for themes**

Once the data were coded and organised into different sets of codes, the third stage began. This stage involved gathering and grouping similar and relevant codes into themes. The researcher was able to identify relationships among the codes that could make up themes (Terry et al., 2017). The themes identified were linked to the entire data. Thematic analysis allowed the researcher to explore themes in different ways, and they could be described in different ways. Some codes could fit into main themes, and others into subthemes.

## **Phase 4: Reviewing themes**

This stage began when the themes were set, and required to be modified. The researcher analysed the themes to check if they formed some sort of pattern. To check the validity of the data she checked the themes to see if they reflected the whole set of data. Themes were required to be grouped together, while other themes were required to be separated. The data were modified into a more manageable state that summarised the whole set of text or data. According to Herzog, Handke, and Hitters, (2019) there should be distinctive in-between the themes yet show coherence and flowing among each theme.

## **Phase 5: Defining and naming themes**

The themes were viewed to see if they reflected a meaningful story, and answered the research questions (Terry et al., 2017). The themes were evaluated to ensure that they worked well with the coded data. Theme names needed to be straightforward and effective so that the readers could get information about what they represented. They could only be finalised after the data had been reread and the codes scrutinised at least twice.

## **Phase 6: Producing the report**

The last step included the writing up of the findings, the entire theme having been established. Information from all stages was used to produce a final report. The researcher moved from the description of patterns and summary, and focused on the interpretations and implications of the data in relation to the literature.

### **3.6. DATA QUALITY**

The quality of qualitative research is measured through important elements including its confirmability, credibility, dependability and transferability. These elements prove the trustworthiness of the research results.

#### **3.6.1. Confirmability**

Confirmability of this study was presented in the collected and analysed data as the results were only a reflection of the participants' experience, and not of the researcher's. Confirmability was maintained by using information based on the school where the research was conducted, and the results cannot be generalised to other schools as the participants were only teachers from a selected resource centre in the Pinetown District (Hoffmann, 2015).

#### **3.6.2. Credibility**

The credibility of the study deals with finding out if there is truth in the findings in describing only the perspectives of the participants. The researcher ensured the credibility of the study by choosing suitable tools for gathering and analysing data. The researcher also created a working relationship with the participants and understood the context they operated in. During the data collection, the researcher probed to have more clarification in the responses of the participants (Hoffmann, 2015).

#### **3.6.3. Dependability**

The dependability is about how dependable the study can be, which is seen in the stability of the research finding (Kalu, & Bwalya, 2017). The researcher ensured dependability by described the research process, including the steps taken from the beginning to the development and understanding of the research data. The path taken during the research is recorded.

### **3.6.4. Transferability**

Transferability is about the relevance in the application of the study in different contexts. The study's results should provide ways of how it may be applied generally (Kalu, & Bwalya, 2017). The researcher clearly described all the methods undertaken during the conducting and analysing of the data of this research. The relevant information was mentioned including the sample size, participants' characteristics, the context of the interviews and procedures followed.

## **3.7. ETHICAL CONSIDERATIONS**

Ethics are the moral standards for the professional that need to be followed; They are about ways researchers are expected to behave or conduct themselves.

### **3.7.1. Permission**

Permission to conduct the study was sought from the Research Committee of the University of Zululand, the Faculty of Education and Department of Educational Psychology and Special Education. A letter was also sent to the provincial office of the Department of Basic Education, Pinetown District office and the principal of the school where research was to be conducted. In seeking permission, the objectives and aims of the study were clearly stated. The importance of research ethics is to protect the participants from any harm, including their privacy (St. John et al., 2016).

### **3.7.2. Informed consent**

Manti, and Licari (2018) stated Informed consent process involves the researcher informing the participants about all the essential and critical information about the research in order for the participant to make a decision of being part of the research. Informed consent protects participants from any harm, and it also informs them of the rights they have as participants. All the information regarding the research study, including its nature, and the risks involved, was communicated to the participants by the researcher in the language they understood (Borovecki, Mlinaric, Horvat, & Supak Smolcic 2018). The measures taken to ensure that the confidential information of the participants was kept safe were also explained. The participants were given an informed consent form to sign after they had a clear understanding of the purpose and nature of the research study, and were willing to participate. Participants were informed about the possible benefits and also the potential harm before engaging with the research process.

### **3.7.3. Participation**

Groot, and Abma, (2022) believed that researcher needs to be aware of the ethical issues that protects participants from exploitation and the importance of voluntary participation. The researcher protected the participants from harm by asking questions that were relevant only to the study. The only people who participated were teachers of learners with ASD in the resource centre. Each participant was informed about their right to refuse or withdraw from the study (Kompanje, van Dijck, Chalos, van den Berg, Janssen, Nederkoorn, & Peul, 2020).

### **3.7.4. Deception**

Ismallow, Tsikerdekis, and Zeadally (2020) warned that deception from the researcher could cause compromises to the validity of the results. The researcher stayed away from any form of deception. There was no deception through omission as the researcher did not hold information from the participants that were crucial to enable them to make a decision whether to stay or withdraw from the study. Nor was there any deception through commission as the researcher did not promise the participants that they would receive some sort of compensation for participating in the research.

### **3.7.5. Privacy**

Elkoumy, Fahrenkrog-Petersen, Sani, Koschmider, Nannhardt, Von Voigt and Waldthausen, (2021) stated that privacy is about protecting the personal information of the participants. The researcher did not pry into the participant's private/personal information that was not relevant to the study, and did not violate the participants' privacy such as calling at night or visiting the participants' home without permission.

### **3.7.6. Plagiarism**

According to Awasthi (2019) the researcher needs to maintain the validity and trustworthy of the research by providing evidence that the researcher produced his/her own work and in case of using someone else's work full acknowledgement is given through proper citation and referencing. The researcher provided her own original work and did not produce someone else's work as her own. She declared it in the list of references whenever there was use of someone else's work.

### **3.7.7. Avoid harm**

The researcher did not ask questions that caused harm, and discontinued if the participant was no longer comfortable with the interview. She was aware that children with ASD are vulnerable human beings, and the presence of a researcher could cause discomfort. She adhered to ethical protocol and made sure learners were comfortable. A letter was also sent to the parents to ask for permission to be in the same space as the learners with autism. The researcher did not engage with the learners. In the process of protecting the learners, minimum contact were initiated with them. Even though learners with Autism Spectrum Disorder are regarded as vulnerable learners, the teacher did inform them that they will be part of the research process (Garcia-Quiroga, & Agoglia, 2020).

### **3.7.8. Confidentiality**

It was important for the researcher to keep the information from the participants confidential. The participants were informed about various measures that would be taken to ensure that the data were kept confidential. Confidentiality involves protecting the participants' information from having their personal information known to the third party (Elkoumy, Fahrenkrog-Petersen, Sani, Koschmider, Nannhardt, Von Voigt & Waldthausen, 2021) To keep the data confidential the participants were given pseudonyms so that they could not be identified through the data. The data were also kept in a safe place protected by a security code known only to the researcher.

## **3.8. SUMMARY**

In this chapter the researcher explained the research methodology procedures used in sampling, data collection and analysis to answer the research questions. She also adhered to the prescribed ethical considerations as this study included human participants who included vulnerable individuals. The next chapter will be about presentation of the data analysed using thematic analysis. This includes the various procedures followed using thematic analysis.

## **CHAPTER FOUR**

### **PRESENTATION OF DATA AND DATA ANALYSIS**

#### **4.1 INTRODUCTION**

This study intended to investigate pedagogical practices used by educators to enhance participation of learners with ASD in a resource centre in the Pinetown District. Data were collected using semi-structured interviews and observation. In each transcript themes were identified during the process of data analysis using the thematic analysis method. Themes were then put into patterns and categories to create connection and understanding of the data collected. Each participant voluntarily shared their experiences of ways to enhance learning participations of learners with ASD. Data were analysed through the reviewed literature, and informed by the research objectives.

#### **4.2 OBJECTIVES OF THE STUDY**

- To investigate the features of ASD which influence learners' participation in learning.
- To explore the available pedagogical practices that could enhance the learning participation of learners with ASD.
- To determine the necessary support mechanisms to improve the learning of learners with ASD.

#### **4.3 THE PARTICIPANTS**

Seven teachers were selected as participants through communication with the school principals and teachers. Participation was voluntary, and each shared their experiences of teaching learners with ASD. Since children with ASD are vulnerable, measures were taken to ensure that they felt comfortable all the time, and this included the researcher avoiding any communication with them. As noted, the teachers were willing to participate, and it was a cooperative and friendly process. All seven participants were females, their working experience varying from 0- 9 years (3), to 10-19 years (3), 20-29 years (0), and 30-39 years (1). Their education level also varied from diploma (4) to degree (2) and Honours (1).

## Data from semi-structured interviews

### 4.4 THEMES AND SUBTHEMES

This is an illustration of the themes and subthemes that emerged from data analysis to answer the research questions.

**4.4.1** How the characteristics of learners with ASD affect their participation in class?

**4.4.1.1** The impact of behavioural challenges of learners with ASD on class participation.

**4.4.1.2** The influence of comorbidity and treatment on active engagement.

**4.4.2** ASD learners' participation and interest in physical activity.

**4.4.3** The creativity and flexibility of teachers of learners with ASD.

**4.4.3.1** How motivation keeps learners with ASD actively engaged in class participation?

**4.4.4** The importance of environment for learners with ASD.

**4.4.5** The need for continuous teacher development for learners with ASD

**4.4.6** The importance of a multidisciplinary team for learners with ASD

**4.4.6.1** The importance of an individual educational plan (IEP) for learners with ASD

**4.4.6.2** The importance of parent's involvement in their children's education.

#### **4.4.1 How do the characteristics of learners with ASD affect their participation in class?**

This study revealed that the characteristics of learners ASD do affect the learners' participation. Learners with ASD are impaired in different domains including communication, social and motor interactions, and these limit their interaction with other individuals (Memari, Panahi, Ranjbar, Moshayedi, Shafiei, Kordi, & Ziaee, 2015). Teixeira, De Matos and Morgado (2016) stated that ASD learners are impaired in various domains that are essential for educational activities. Learners with ASD have few opportunities and little practice to develop their skills, which leads to their limited participation in activities owing to disorders such as language and adaptive inability (Little, Ausderau, Sideris, & Baranek, 2015). Teachers felt that it is difficult for learners with ASD to understand the normal socialised way of living, which requires the teacher

to try to understand the learner's world and accommodate it. Teachers indicated that learners with ASD are different from other learners with special needs.

**Teacher B:** *“Characteristics of learners with ASD do affect them in the learning participation because they think in a different way from us. We as teachers have to come to their world that doesn't go with a socialised way of living. We have to follow them and understand them as a whole, and also understand the disorder itself before we are able to teach.”*

**Teacher C:** *“They are different from other learners in their age group. That is why in this school, since it is a special school, they have been put in their different units because they are different, and they need to be taught in ways different from others.”*

**Teacher F:** *“Characteristics of ASD learners make them live in their own world. The way they see, hear or perceive things are different from ours.”*

### **I The influence of sensory sensitivity**

The majority of learners with ASD have sensory difficulties which sometimes lead to negative responses to sensory input. As confirmed by Case-Smith, Weaver and Fristad (2015) and Melanson (2019), the sensory stimuli may include touch, taste, smell, sound, movement, texture, heat, smell, colour, or cold. The sensory difficulties may be seen in distress and violent behaviour owing to the sensory stimuli. Behaviour such as rocking, twirling or spinning have been associated with sensory difficulty (Case-Smith, Weaver, & Fristad, 2015). Teachers indicated that the response to a sensory stimulus by learners with ASD can be seen in different ways such as craving for that particular sensory stimulus, or having an adverse reaction to a certain sensory stimulus. Sensory sensitive response is believed to imperil the learner's participation in class, causing anxiety and decreased concentration. Teachers explained that learners with sensory sensitivity tend to avoid unpredictable social situations, and when confronted with sensory sensitiveness they tend to engage in certain abnormal behaviour. Accommodation is given as a way to provide assistance with various sensory sensitivity in learners with ASD.

**Teacher C:** *“One of the symptoms of learners with ASD is that some have sensitive senses. There was a learner in my class...I don't know how he perceived sounds. For an instance by just banging a desk he would have a bad reaction. Maybe it sounded like lightning to him, I don't know, and that may have been irritating for him. He became very uncomfortable at times when he had to be in places that were noisy in the school, such*

as assembly. Understanding his discomfort, I tried to accommodate him by not being too loud or shouting during class time, and also not sending him unnecessarily into crowded places.”

**Teacher G:** *“Some are sensitive to things such as colour. For example, they may dislike the colour black, and you may come wearing that colour and frighten the learner into running away. Again, if you are wearing a colour they like you may see them coming close to you and wanting to touch that colour although they don’t know you. Even if you are in a mall with them, if they see something they don’t like you will see them acting strangely, such as running away, or screaming.”*

**Teacher D:** *“Learners with ASD are not normal, and live in their own world. Some will carry plastic because they like the way it feels, and some likes strange sounds.”*

**Teacher B:** *“I have a learner in my class who, if she doesn’t like that texture, will not engage with that object. But sometime her favourite texture is used to calm her down whenever she seems distressed.”*

**Teacher E:** *“Some will close their eyes because they are sensitive to light.”*

**Teacher F:** *“There is a learner who likes eating a plastic pocket of chips. Maybe he likes the way it tastes.”*

## **II The need for routine and sameness**

All teachers agree with Chantell and du Preez (2018) that one of the impaired domains includes rigid, repetitive, restricted interest and behaviour such as wanting the same routine movement, sitting in the same seat every day, and being sensitive to sound, light or touch. Teachers felt that Learners with ASD feel more comfortable if they have the sameness which makes it easy for them to make predictions, and sudden changes may cause them distress. Routine is one of the most important things to a learner with ASD. Teachers explained that routine can be helpful in assisting learners to easily master some activities. Repetition of activity every day gives a higher chance of every learner grasping it. As learners with ASD are inflexible and want sameness every day, they have difficulty adapting to and functioning in an unfamiliar environment. Learners need to be prepared in advance if there are to be changes to their daily routine.

**Teacher A:** *“When you teach an ASD learner you first assess the home routine, starting with the basics, such as are they able to self-care, and you start with things like toilet routine.”*

**Teacher B:** *“The structure and routine help in terms of letting the learners know that now it is time for whatever it may be.”*

**Teacher C:** *“They are also picky with the food; they like sameness. Even with hairstyles they like you [the teacher] to remain with the same hairstyle. As I wear spectacles a learner may only know that his teacher wears spectacles, and if I don’t wear them one day it may cause trouble because I have changed the sameness. Even the class seating has to remain the same because if you change it you are starting a problem. The time for lunch should be the same and they know what time the school starts and ends. The routine should be maintained all the time.”*

**Teacher F:** *“The learner had to change to a taxi, but he became uncomfortable when riding in a taxi. After a short while the school buses were fixed, but his parents decided to let him continue using a taxi, and every day after school he would go and try to ride a bus, because that was the routine he knew . It would have been better if there was someone to walk him through it until he was used to the taxi routine.”*

**Teacher G:** *“It becomes a challenge if there is a change in routine. There was a learner who would scream and cry whenever it was time to go home, wanting a bus, but we had bus problems, so we had to stay until someone picked her up. There was another learner who used to be accompanied by his mother every day to school. When his mother got a job she put him on a bus. He would cry each time he got into a bus. After school he would hide just to avoid riding in the bus.”*

**Teacher C:** *“it becomes a challenge if there has been a school holiday, because they are now used to the home routine, so you have to readjust their routine to fit the school environment.”*

**Teacher D:** *“You can’t make sudden changes, even with something as simple as changing a seating place.”*

**Teacher A:** *“There are those who have made it a routine that when they come into class they take off their shoes. To accommodate their routine I have involved them into putting the shoes in their bags immediately after taking them off as a way to safe- keep their shoes. The whole process has become their routine. In the morning there is a routine of the morning rings to remind them of the important information about themselves such as naming the body parts while touching them and singing. This makes everyone engaged and quickly learn the important basic information.”*

**Teacher G:** *“Somethings need to be retaught after there has been a break such as a holiday or being absent for a number of days.”*

**Teacher B:** *“You have to maintain the routine all the time. It’s as if they have mental watches, because when it’s lunchtime they know, and you can’t continue with teaching because they become restless, and want to have their lunch.”*

**Teacher E:** *“It would be good if you do something top continue with it as usual, because they don’t want sudden change. Like if they sing in the morning it should be like that every day.”*

### **III The impact of echolalia**

A study by Khasakhala (2016) indicated that some learners with ASD may engage in repetition of meaningless words of others, and it usually happens when a learner wants to communicate, and this may be due to lack of inhibitory control. Teachers reported that some of the learners repeat words uttered by others without having a proper understanding of the meaning of those words. This makes it hard for a teacher to continue with the lesson as it disrupts the teaching and learning process. Teachers feel that learners with echolalia make it hard for a teacher to measure their knowledge and understanding of the lesson of the day, as they just repeat words which sometimes have no meaning or relation to the topic.

**Teacher B:** *“I was once doing rhymes in class, and there was a learner who had echolalia and kept on repeating what I said the whole day. He kept repeating it for the whole month, so I didn’t know if my teaching of rhymes was a trigger for him, since there is a repetition of lines.”*

**Teacher C:** *“With some, the only thing they know is to repeat what you have been saying, and you don’t know how much they understood of what you were teaching.”*

**Teacher E:** *“ASD children are different and live in their own world. Some have echolalia, and only repeat what you say.”*

### **IV Lack of interpersonal relationships**

A study by Chantell and du Preez (2018) revealed that one of the impaired domains is social interaction and communication, indicating that learners would have difficulty understanding personal space, reading emotions, taking interest in other people, having

a flowing conversation and understanding social rules. This is supported by Chua et al. (2017), indicating that communicating and forming relationship with other people is problematic. Learners with ASD are unable to show reciprocity towards others, or express their own emotions.

Teachers reported that learners with ASD have difficulty forming, maintaining and understanding interpersonal relationships. They lack social interaction skills, making it hard to form relationships with others. Teachers explained that learners with ASD do not understand non-verbal cues such as facial expressions, gestures and body language, which is essential in understanding the other person. Most of the time learners are not interested in what others are saying, as they are unable to perceive any logic in flowing conversation. The teachers reported that ASD learners do not interact with others because they do not have the ability to understand the feelings of others. They have difficulty asking other learners for help with school work if there is a part they do not understand.

**Teacher A:** *“Children with ASD will engage in their own activity, with very limited socialising. They are unable to make friends with another. This makes it difficult for them to learn as a group.”*

**Teacher B:** *“Some learners like isolation – when others are in class they want to go outside, and when others are outside they want to go inside, just to avoid sharing a space with others....these are things that always keep you on your toes as a teacher. They like to play on their own, and don’t like to socialise with other children in the class. They play on their own with their individual items such as sticks. They can be outside with other children, but not paying attention to one another: each person will be focusing on his or her own things. So if it happens that my class goes out at the same time as my colleague’s class, my class just comes back into the classroom during break because they are unable to socialise or make friends with the other children.”*

**Teacher F:** *“Learners with ASD like to play alone, and those who play with others have selected friends.”*

**Teacher D:** *“Learners with ASD do not understand sharing with others. They have problems with forming friends, and prefer to spend most of the time alone and engaging with whatever they perceive as interesting.”*

One teacher stated that learners with ASD do not understand humour, and take everything literally.

**Teacher F:** *“You have to be careful of what you say to them. I once made a joke about a learner’s mother, and they went home and told their parents out of context. They just don’t understand humour.”*

## **V Limited understanding of the boundaries**

Chantell and du Preez (2018) mentioned that learners with ASD have difficulty planning their actions, since they do not understand gesture, body language, non-verbal cues, eye contact or facial expression. This explains the teachers’ concern that learners with ASD do not understand or respect other people’s boundaries. Since learners with ASD do not understand the feelings of others, and have impaired social norms, it is difficult for them to understand if something is socially appropriate or not. If they see something that is fascinating to them they just go for it, without considering how it would make the next person feel. Teachers are worried that they may come across people who do not understand them, and will take offence, or get involved in situations that could be dangerous for them, as they are unable to assess the extent of danger in a situation.

**Teacher C:** *“if you are wearing the colour they like you may see them coming close to you and wanting to touch that colour, although they don’t know you.”*

**Teacher G:** *“Some don’t understand boundaries: one may want to touch something you are wearing, or maybe your earrings. They like things that are colourful most of the time.”*

**Teacher A:** *“There was a learner in my class who is no longer in the school. He used to not understand the rules of a school environment. He would do anything he wanted at that time without considering if it was appropriate or not. He just enjoyed lying on my table. He would climb into everything in the classroom, and I was so worried about his safety that I ended up locking the door to keep him in class. He would come too close to my face when I was sitting on the chair.”*

## **VI influences of emotional wellbeing**

Marsh, Spagnol, Grov and Eapen (2017) explained that learners with ASD have challenges with self-regulation, which results in emotional difficulty, and that affects their school readiness. Their study also revealed that learners’ emotional wellbeing has a link to engaging with school and forming relationships with the teachers. Transition to school seems to be a challenge for learners with ASD since they have difficulty with social interaction. They seem to struggle with social and daily living skills and adjustment

challenges, which make the school transition a challenge which may affect the learning process. Teachers in this study are aware that the emotional wellbeing of learners with ASD does affect their behaviour and participation in class.

Teachers shared that they need to first deal with every emotional challenge before they can continue with teaching. Learners with ASD are unable to change their emotions and behaviour when moving into a new environment. Teachers have to first deal with their emotional problems as a way of helping them adapt to the class environment, and this gives them a chance to be part of the lesson. According to Berkovits, Eisenhower and Blacher (2017), the emotional function of learners with ASD is not related to their intellectual function, but is influenced by the social and behavioural elements around them.

**Teacher A:** *“The mood they have come with from home is very effective; that why it is important to communicate with the parents. The parents need to prepare them when going to school. You [the teacher] need to deal with their emotional issues first.”*

**Teacher E:** *“There was a learner who disliked the bus. Each time the bus came he would kick it. He was from the mainstream and transferred here [special school] so he disliked the bus and this school. Even if he came to the classroom he would sometimes kick the door because he didn’t want to be here So I had to first calm him down and deal with him being upset.”*

**Teacher F:** *“I once had a learner in class who, if he had had a fight with his mother in the morning, wouldn’t want to do anything in class, and if you tried to get close to him he would scream ‘You are mother! You are mother’. Than you would see that he had a problem with his mother.”*

**Teacher G:** *“Once they have been disturbed in the morning, their whole day is ruined, and they can’t share why they are upset. You need to calm them down before you can continue. You may hug them to make them feel better, and the rest of the class will also want to be hugged, but you have to do it so that everyone is in a good mood.”*

**Teacher B:** *“Learners with ASD are very different and unique, and the way they behave changes even if you have the right structure. It depends on the mood they are in that day. They have their own way of thinking, and want things to go their way.”*

The findings above reveal that the characteristics of learners with ASD do influence the class’s participation. Learners with ASD are impaired in important domains of school,

which makes it difficult for them to behave like their typically developing peers. The way the world is perceived by ASD learners is different and unique. The biggest challenge for the learners with ASD is for them to be expected to live by social norms, while their brains work differently from other people's. Social interaction and communication difficulties are one of the core characteristics of those with ASD, which impairs them in things such as developing, maintaining and enjoying relationships, and understanding friendship. Rigid and repetitive behaviour and interest are also characteristics of ASD, which make it hard for learners to keep a conversation flowing, because they do not know the rules of conversation such as taking turns and listening attentively. Sensory sensitivity may also cause these learners to avoid certain social settings. The characteristics of ASD make it difficult for them to actively engage in a classroom as they have difficulty understanding gesture, body language, facial expression and non-verbal cues that provide additional information in the matter. In sum, impairment caused by the disorder makes it difficult for these learners to develop the skills that they lack.

#### **4.4.1.1 The impact of behavioural challenges of learners with ASD on class participation**

Teachers reported that learners with ASD have behaviours that seem abnormal. These behaviours are very destructive in class, and sometimes teachers allow them for short periods of time because if they do not allow them learners will keep initiating them the whole day. Some of these abnormal behaviours are harmless, but others can be dangerous to the learners. Some learners display these behaviours when they are outside the class with no teacher to monitor them. Individuals with ASD may have the same condition, but it may be displayed in different forms and at different levels. Each person with ASD is unique, and may be affected by the disorder in a different manner. Some individuals with ASD may not be able to assess an environment that will bring danger to them (Altenmüller-Lewis, 2017).

**Teacher A:** *"I have a student who likes to spin around the class, and you have to let her, but I only give her five minutes for her to do that, then we continue. She is able to follow instruction only after she has done her spinning routine. You have to first understand her before being able to teach her."*

**Teacher C:** *"Like the student who wants to pick up grass outside – you have to go and fetch him, and during that time the others are left alone and not getting attention, and after bringing him back in class he will stay for two minutes and go outside again. So his*

*behaviour is challenging. .... Once you are absent it becomes a problem because another teacher would not understand the procedure of fetching him from outside.”*

**Teacher E:** *“There was a learner who had behavioural challenges. I didn’t understand him back then, and I had to lock the classroom to prevent him from leaving it, and it was really difficult.”*

Teachers of learners with ASD sometimes feel a challenge in managing behaviour presented by the learners. Khasakhala, (2016) mentioned that owing to lack of iron, environmental factors and psychological factors some learners with ASD eat non-nutritious items such as sand, paint, plastic and paper, and these items can be dangerous for them, as they may cause indigestion and choking. There is one teacher that reported a learner who eats non-nutritional items:

**Teacher F:** *There is a learner who likes to eat a plastic pocket of chips, and will cut it into pieces and eat it during the day. If you tell him to go throw it away, he does, but he always has other plastic bags that are always hidden. He goes around school picking up a pocket of chips, and cuts it at home. He loves it too much, and I am worried that it may have a negative effect on him.”*

One of the behavioural challenges reported is restlessness of learners with ASD. Some of them are unable to keep still, and end up walking around disturbing other learners, and that makes it hard for those learners to focus on the lesson. Learners that are restless are unable to actively participate because they are all over the class.

**Teacher D:** *“the majority of learners with ASD are restless, going up and down and disturbing others.”*

**Teacher C:** *“Some keep on rocking on the chair, and they can’t remain still, they become restless. They have certain behaviour that differentiates them from others. While others like to roll themselves down ...I don’t know why, but sometimes they feel like doing that out of the blue.”*

Teachers reported that learners with ASD are sometime influenced by the other learners. They easily adopt the behaviour of others, which results in a number of learners engaging in the same behaviour in a class, and most of the time it is disruptive. A teacher reported needing to first deal with the learner who initiated the misbehaviour, and then the others would stop too, because they were just copying the first one. Adopting behaviour can be positive as the learners sometimes copy good behaviour

from others. If a learner does something good and is encouraged for it, most of the other learners will want to behave in the same way, and be encouraged too.”

**Teacher D:** *“Some are restless and perform strange behaviours. There was one student that if the majority in class were on good behaviour, he also showed good behaviour, but once he was out and had no one to copy the behaviour from, he would change completely and do everything on his own. He was easily influenced.”*

**Teacher G:** *“They adopt the behaviour of others. If one bangs the table you will see the others doing the same. You need to work with the one who started the behaviour, so once he stops the rest stop. They try to copy good behaviour, too. Maybe if one gets a sweet for good behaviour, they will also want a sweet, so you need to explain why he got a sweet; then they will also want to do that behaviour.”*

**Teacher D:** *“Some are different in class from what they are when they are outside. They are able to adapt to the class environment and do what other learners do in class.”*

**Teacher A:** *“Their thinking process is different – it’s like daydreaming. They are different. Some adopt the character of others or even of cartoons, and they act in that way.”*

Teachers reported that even though the learners are all diagnosed with ASD, they are all different. The disorder affects them in different ways, so there is no one-size-fits-all. It is important for a teacher to spend an excessive amount of time studying each learner as an individual to fully understand what would be suitable for each learner.

**Teacher B:** *“Learners with ASD are very different and unique, and the way they behave changes.”*

**Teacher C:** *“Each person lives in their own world as they are all unique, even though they all have ASD. So you as a teacher need to try to teach them the normal world. Some want to do something like picking up grass outside the whole day, and you need to teach him/her that in school you can’t go outside and pick grass. You need to be in class sitting down and learning. It’s one step at a time, even though it is not easy.”*

**Teacher D:** *“They are different and unique, and will take an interest in something that is not seen as normal. It’s as if they live in their own world.”*

**Teacher F:** *“They are individuals and unique, and you need to treat them differently. You need to be a teacher for each one of them.”*

These findings reveal that the behaviour of learners with ASD can be a challenge, and can have an adverse impact on their classroom engagement. As learners with ASD are interested in things that may seem strange or unusual, their behaviour may also be seen as strange and unusual. If they are denied the opportunity to display their behavioural patterns, it may cause them distress. The teacher has to find a way to make things work with those behavioural challenges involved. Teachers find creative ways to balance their occurrence and schoolwork. Another way is to use the behaviour in a give-and-take situation, where the learner is allowed to do that certain behaviour only after he/she has done something for the teacher, such as saying something he/she has learnt. Some of the learners' behaviour is learnt from others, and a teacher needs to be creative in ways to deal with the behavioural challenges.

#### **4.4.1.2 The influence of comorbidity and treatment on active engagement**

Antshel, Zhang-James, Wagner, Ledesma and Faraone (2016) mentioned that the comorbidity is universal, and learners that have more than one disorder are more impaired than the learners with one disorder. Learners with ASD are at higher risk of developing other disorders. Teachers find it hard to deal with the symptoms of comorbidity. While they are trying to focus on the unique symptoms of ASD, other symptoms of other disorders come to life, making it hard to control the learners. Teachers develop strategies that are suitable only for learners with ASD, but if there is another disorder it is really hard to find a teaching method that will be precisely suitable for those individuals. The most common comorbidity is ASD and Attention Deficit Hyperactivity Disorder (ADHD).

**Teacher E:** *“Sometimes they get bored being in the class for a long time. I have a learner who was ASD and ADHD, and he was very challenging as he never wanted to spend time in class.”*

**Teacher F:** *“There is a learner who has comorbidity. Once you are focusing on the symptoms of ADHD, then he has moved on to ASD symptoms, and that is hard because he is very challenging. His behaviour fluctuates.”*

**Teacher G:** *“Most of the learners with ASD have a speech problem, and it is a challenge to teach them as they are unable to communicate.”*

**Teacher B:** *“I have a student who is partially sighted, and so can’t see properly. Sometimes I feel helpless because what can I do as a teacher? I really don’t know how to help him, but I do try different things, and work with things that he can see.”*

One teacher reported that while the treatment does help with the symptoms of ASD, it does have some side effects. The way the treatment affects the learners with ASD is different each day. On some days it will make them hyper and uncontrollable in class, while on other days it makes them slow and sleepy. When the side effects of treatment are present they make it very hard for learners to participate in class. The medication given to people with disability serves as a way to try and eliminate or manage the cause of the impairment (Haegele, & Hodge, 2016), but sometimes it can have an adverse impact on other areas.

**Teacher B:** *“Some are on treatment and it affects them differently because sometimes once they have taken the treatment they become very sleepy. Sometimes the medication is okay, but sometimes it makes them very sleepy, and even if you wake them up there is nothing much they can do, so it is better to let them sleep . Sometimes they become very hyper and uncontrollable.”*

These findings reveal that it becomes more challenging to deal with a learner that has comorbidity, as the teacher has developed teaching strategies that are suitable for certain individuals, only to find that their behaviour changes, depending on which disorder is dominant on that particular day. The most common comorbidity of learners with ASD is the coexisting with ADHD and speech difficulty. Treatment for these disorders has its own side effect. It becomes more difficult if a learner is taking treatment for more than one disorder. Some treatment makes the learners sleepy during class, or just tired, which make it very difficult for them to concentrate and participate in the lesson of the day.

#### **4.4.2 ASD learners’ participation and interest in physical activities**

Memari et al, (2015) stressed that physical activity is crucial for the development of the psychosocial nature of learners with ASD. According to Miramontez, and Schwartz (2017), one of the advantages of physical activity is that it does not require much specialised training. Activities that are led by teachers help make learners engage in behaviour that is academically related. Everyday physical activities serve as a benefit for learners, including learners with ASD, and those benefits include health, academic and behavioural benefits. However, it is important that a teacher is always present to

monitor the physical activity of learners as a way to facilitate and provide support (Miramontez & Schwartz, 2017).

Teachers reported that learners with ASD learn better if it is a physical activity. During a physical activity, learners with ASD become engaged. Teachers believe that visible objects last longer in the memory of learners with ASD as the majority have underdeveloped abstract reasoning ability, which makes them better understand things that they can see and feel. The intellectual function of learners with ASD differs, resulting in some of them having a harder time with reading and writing, and they perform better with practicality. Physical activities are enjoyable for learners, but a teacher needs to be always present, as learners with ASD may harm themselves. Haegele, and Sutherland (2015) stressed the importance of learners with ASD having their own personal space during physical activity, away from their peers without ASD. The physical learning requires a physically conducive environment such as human comforts and safety measures (Ahmad, Shaari, Hashim, & Kariminia, 2015)

**Teacher C:** *“They [ASD learners] also enjoy the physical activity and being outdoors. I like drawing for them on the floor such as drawing number one, and they jump once, making it some sort of a game.”*

**Teacher F:** *“Most children with ASD do not like writing, and they prefer practicality, so you need to do a lot of physical activity to keep them engaged.”*

**Teacher G:** *“Before they know something it has to be practical first before they are able to write it.”*

**Teacher A:** *“They have a short attention span when it comes to writing. That is why we try to use the play method in teaching them because they want something to be practical or physical.”*

**Teacher B:** *“They are better when they are physically involved. It is more enjoyable for them than doing the written work. The physical activities also have health benefits.”*

Teachers reported that even though the practical lessons seem suitable and enjoyable for learners with ASD, basic reading and writing skills are important for everyone, including learners with ASD. They will help them survive in the outside world. Identifying information is very important, so the focus is mainly there in terms of reading and writing. However, there are those learners with ASD who are able to read and write more than

just in identifying information. Different strategies are used to help the learners master their biological information.

**Teacher A:** *“Even though the written work is hard, they need to know how to read and write some things. We start by cutting pieces of paper with letters to match with their names, and after that we go for writing one letter at a time. So it is better that only after a year they go to the next class with a new teacher, so they spend an amount of time with that one teacher who understands them better so that there is more achieved.”*

**Teacher E:** *“They know the identifying information such as name, age, where they live etc. since that is important for them to know about themselves. The majority of ASD learners are better in speaking than writing, and some are able to read. There was a learner who was able to read some words in class, but had a problem with writing.”*

It was reported that the play method is one of the effective teaching strategies that the teachers used. Using games to promote learning participation is very effective as the learners are not aware that they are actually doing schoolwork. They just focus on the pleasure. A teacher needs to find ways to integrate the curriculum into the games implemented. A game can also teach learners different skills that they can use in different environments such as waiting for their turn, and socialising with others. Games are the motivating factor for many learners.

**Teacher D:** *“Play method is very effective in learners with ASD because you use a game to teach them and they participate and enjoy.”*

**Teacher G:** *“Games need to be implemented with the lesson plan to make it more fun for learners with ASD. Games make the learners participate.”*

Teachers felt that some of the learners with ASD are interested in storytelling. The stories told to learners with ASD are also implemented with the curriculum. Storytelling is perceived as a sort of relaxation by learners with ASD, while the stories teach them different skills depending on the lesson of the day. The themes for the stories are chosen from the curriculum. Storytelling sometimes involves listening to a story that has a valuable lesson behind it, and the learners answer questions based on the story told them. Sometimes the storytelling involves showcasing certain skills that learners are required to try out immediately after the demonstration.

**Teacher A:** *“We sometimes use storytelling to engage them. They listen to a short story, and then answer the questions after a story. We usually do that at snack time while they*

*are relaxing, and they don't realise we are actually involving them in a teaching and learning process..During the story there is a certain theme that is followed based on the curriculum. For example, the theme may be about 'myself'. So the person in the story will share who they are, and each learner will then be asked who they are, and to say something about themselves. After sharing that they get the opportunity to ask the next learner. The learners perceive it as a fun activity."*

**Teacher B:** *"We sometimes listen to the story from the radio, and learners will share what they heard. Some of the learners really enjoy this."*

These findings reveal that learners with ASD are good at physical activity, and enjoy it more than the paper and pen work. Physical activity has benefits for learners with ASD as it is healthy for them. It also teaches them the skill of interacting as a class. During the physical activity, almost every learner in the class participates. Even though the majority of learners with ASD have difficulty with reading and writing, teachers find strategies for the learners to learn identifying information. The play method is effective as it keeps learners participating and excited. motivate learners and help them to keep participating. Storytelling is also used to teach learners with ASD.

#### **4.4.3 The creativity and flexibility of teachers of learners with ASD**

Hamed, Preece and Hashim (2016) perceive creative teaching as one of the important components in the teaching and learning process to make meaningful learning experiences in the classroom. Creativity and flexibility allows teachers to bring real-life situations to class that require real-world problem solving, which is blended in with the curriculum so that students can engage more in classroom activity.

Teachers mentioned that they need to be creative and flexible to be able to keep learners with ASD actively engaged with the classroom activity. Creativity makes teachers search for various ways of teaching learners with ASD, as each individual is unique. The teachers have the task of finding an effective strategy for learners to keep them actively engaged. The behaviour of learners with ASD can change each day, so teachers need to be flexible to try and meet the needs of every learner.

**Teacher A:** *"You can't just teach them in the normal or ordinary way. You need to find ways to grasp their attention so they can participate. If you want to teach them shapes, you also need to have to have the tangible object to keep them interested. Sometimes when I want to teach numbers I draw circles on the floor and put a number inside them, and they will jump in each circle as many times as the number inside the circle."*

**Teacher B:** *“Teaching them is interesting because they are out of the ordinary. You need to be creative as their thinking is out of the box, so you try absolutely everything, and try to make the lesson as enjoyable as possible for them. You keep on trying and trying until you find an operational method, and once it no longer effective you continue searching and searching, so it’s a process.”*

**Teacher C:** *“Your teaching style needs to be creative, such as writing in big and colourful letters to grasp their attention.”*

**Teacher D:** *“My creative teaching strategy is that I first teach them as a whole class and identify those who are left behind. Then I go to the groups, and if there are still those left behind, I then move to the individuals. The plan is to make everyone understand something.”*

**Teacher E:** *“They need to be taught with something visible that is tangible so that they can see and feel it to make full sense of the object. They need concrete objects when doing maths so that they can calculate. With some I even hold their hands to show them how to write something. Sometimes I do dots and they have to join them to make a complete letter or word.”*

One teacher reported that using a learner’s preference to teach them makes the learner more interested. When learners’ preferences are used to explain an activity, they easily become engaged in the lesson. Individual preferences can be seen by the amount of time used in engaging with that particular object, or talking about that specific topic. Using learners’ preferences seems like providing a reward for learners, at the same time getting them to participate more, as learners with ASD like to engage and talk about the topic of their interest. Since learners with ASD are unique individuals, they have different preferences. The use of preferences is one way to keep them motivated.

**Teacher E:** *“You need to understand their preferences and things they don’t like. Maybe the child hates animals, so you have to know that they will not enjoy or participate in an activity that involves animals. You need to understand them first and use things that are their favourites. Preferences make the learner have an interest to understand, and they bring a good feeling. Learners’ preferences are seen in the things they like to touch or talk more about in class.”*

The understanding of instructions is the key element in participating in an activity. Teachers reported that the instructions given to learners with ASD vary depending on the abilities of each child. Both verbal and nonverbal instructions are used, but the

majority of learners with ASD cannot read, resulting in verbal instructions being used most. Instructions should be understood by the learners before they can participate. Additional support is given at the same time with instructions for learners' understanding. Providing additional support can include writing in large font or bright colours, or underlining important information.

**Teacher A:** *"We need to use verbal instructions most of the time because they cannot take written instructions."*

**Teacher D:** *"There are a few ASD learners that understand both the verbal and nonverbal instructions, but most of the learners understanding verbal ones better. To assist learners we make the important information visible by highlighting or underlining."*

**Teacher E:** *"The instructions are also based on their abilities. Some are able to take the whole instruction, such as saying 'Draw a human being': they will have an idea of what to draw. Others need instructions to be broken down, as some will only draw a head, and you have to ask what is missing. If they can figure it out, you may give them a hint, such as 'What do you use to look or see?', and after than you could ask 'What do you use to talk and eat?'"*

**Teacher F:** *"Some are able to understand instructions such as telling them to get you a glass of water, but they are unable to give the instruction back, such as 'Mam, come help me with closing the tap.' Sometimes it is hard for them to communicate if they don't understand something."*

Teachers shared that learners with ASD work at different paces, and the teacher needs to understand that. Some learners work better if they are given a longer time to process the information. Teachers stated that their progress is not based on how many learners actually have understood the lesson at the end of the day. Rather it is based on the fact that there is development within each child, no matter how little it may be. Learners with ASD work more slowly than other learners. They also participate at different paces. There might be a learner who is able to ask more questions, while the other asks only a few, but they are both participating.

**Teacher C:** *"You need to be patient as a teacher, and keep on repeating in different ways for those who don't understand, because there is no learner that can't be taught. You need to understand that their pace is different, as some may take the whole year to learn a single thing, but all are capable of learning."*

**Teacher B:** *“There is a learner who takes a very long time if he has to match letters to his name, but given enough time, he is able to do the task. That is progress for me, because at the end he knows the sequence of letters in his name.”*

**Teacher E:** *“Some [learners] don’t finish as early as others, but they work at their own pace. As long as they finish their work, it is an accomplishment. There is a learner in my class who sometimes becomes moody and doesn’t talk, and you need to give him his space and let him work at his own pace, because if you try to make him talk at the time he doesn’t want to, he will be upset. I have to let him participate at his own pace.”*

**Teacher G:** *“Be patient as a teacher, and don’t take everything to heart, and study the learners so that you will be able to understand their capabilities and their working pace.”*

**Teacher F:** *“I always tell my family that it is better to work at a construction site, because at the end of the day you have something visible to show for the whole day. Only one learner will understand what you have been trying to teach, and you end up questioning yourself about your competence. The thing to understand is that they all work at different paces, and days are not always the same.”*

A teacher shared that sometimes what they have prepared as a lesson plan for the day doesn’t always work out because learners may not want to study that topic, requiring the teacher to change.

**Teacher F:** *“You cannot predict your day because learners may take you in a different direction. Some days you plan an activity and they cooperate, but on other days they just do not want to do it. You can’t predict the sequence of your topics because you may have to tackle it by going around them.”*

Teachers reported that using pictures to teach learners with ASD has been very effective as the learners respond well to visual objects. Some learners are unable to read written work, but can read through pictures. Combining pictures with the lesson is beneficial for learners with ASD as it gives them information that they can use in the outside world. Some learners have a problem with speaking, and are unable to express themselves clearly, but they can communicate using pictures. Teachers explained that visual information lasts longer than verbal information, because pictures are interesting for many learners, and stimulate them to participate more. The visual cues such as bright colours and symbols are effective for grasping the interest and attention of the learners, and making abstract concepts easily understood (Ahmad, et al., 2015).

**Teacher A:** *“We mostly use pictures to guide them. You go step by step and provide guidance for each step such as symbols/pictures that will show or remind them of things like we are now washing our hands, and we use soap.”*

**Teacher C:** *“They [ASD learners] prefer to be taught with visual objects because some of them are unable to read, so if, for example, I am talking about a phone I need to bring a toy phone for them to see.”*

**Teacher D:** *“Having a visual object is very beneficial for them because they don’t usually forget the thing that they have seen.”*

**Teacher G:** *“They need something to see before they can understand it, even if you are teaching them self-care, such as going to the bathroom. There needs to be a picture of the toilet for them to know what you talking about. They have a good memory – they don’t forget things that they have seen. If the previous Monday I was teaching them about a car and I brought a toy car to the class, the next Monday, if I bring the toy car and ask them what it is, they will say it is a car, and tell me what we learnt about it, because they do not forget very easily.”*

These findings indicate that the creativity and flexibility of the teacher goes a long way. When learners’ preferences are used in the teaching and learning process they keep learners interested and engaged because they perceive the lesson as directed to them. Learners with ASD enjoy talking about things that are interesting for them, so their preferences increase their participation. The pace that each learner with ASD works at is different for each individual. It is important for the teacher to understand a learner’s pace, and see progress based on each learner’s development. The planned lesson for the day can change at any time, making it important for the teacher to be flexible, as learners with ASD are unable to be flexible. Using pictures in teaching is effective in allowing all the learners to be able to understand the lesson of the day. Some learners read through pictures, which can be useful even outside school.

#### **4.4.3.1 How does motivation keeps learners with ASD actively engaged in class participation?**

Teachers reported that learners participate more when they are motivated. Learners with ASD are unique, so it is important for a teacher to make sure they know what will motivate each individual. The more a learner is motivated the more interest they show in the lesson, and they can learn more. Sometimes learners with ASD become motivated when the topic is about something they love. When they are motivated, they are able to

take part in the lesson of the day, and engage by asking questions when they do not understand, and do the task required. Motivation makes learners more curious about the topic of interest, and eager to learn more.

**Teacher B:** *“The way to get them [ASD learners] to participate is to be patient, loving and motivating to them. You need to find a way to keep them interested on the lesson.”*

**Teacher E:** *“A teacher needs to make learners want to be in class by making the class more fun and enjoyable. When learners are motivated, they take an active role in learning.”*

Teachers reported that giving rewards is one of the ways of keeping learners motivated. Rewards make the learners feel good about themselves. They make the task enjoyable as the learners receive something enjoyable for them after they have done a certain task. Rewards encourage them to do that task again so that they will be able to get a reward. While some teachers believe that a reward should be based on each learner's preference, others believe that a reward should be one big prize for everyone in class. Once the reward has little or no expected effect on the learner then it is changed to something that is more effective for the desired behaviour. Rewards such as food or social stimuli that have a motivational value for learners with ASD can be seen as positive reinforcements. Schuetze, Rohr, Dewey, McCrimmon, and Bray (2017) stated that Individuals may respond differently to different rewards.

**Teacher A:** *“The rewards are unique to people so it depends on the individual's preferences. Some like to spin, others like straws, others are fascinated by grass. The reward is based on something you have observed as being special to each learner. One learner in my class likes a straw for a reward, so each time she does something good she receives a straw.”*

**Teacher D:** *“The reward system that I use is a star, or I write well done for every learner who has done something good.”*

**Teacher E:** *“The rewards are the same for every learner to keep them happy. Every learner is motivated to get that golden prize.”*

**Teacher F:** *“We have a special day of using R1 [money] as a reward for everyone who completes the work. It's different rewards for each day: sometimes it's stars, but single rand are the best so far. Sometimes as a reward I give them a chance to write on the board and act as a teacher, explaining how they have reached that answer, and they*

*quite enjoy doing that too. I find things that the learners are interested in as a class, and use them as a reward.”*

**Teacher B:** *“You have to be very creative when working with them, like using rewards. In my class I have a radio, and some would ask for 5fm, and I tell them I will only give it to them after they have done something; so that is a reward for them.”*

One teacher emphasised the importance of explaining to the learner the reason he/she is receiving a reward.

**Teacher G:** *“I use rewards as a way of motivating them, but they need to understand why they are receiving a reward. You need to tell them it is because of the behaviour they have displayed, and make sure they understand, and not just assume they do.”*

Another explained the use of competition among learners with ASD. Learners seem to do the required work when they know that the rewards are limited. Everyone makes an effort, and wants to achieve because there is no learner that wants to be left behind.

**Teacher F:** *“on the special day of R1s I create some sort of a competition among them, telling the learners that the R1s are limited, so they all have to work hard and try to finish the work. The effort is also rewarded.”*

Miramontez, and Schwartz (2017) claimed that the level of engagement of learners can be increased by encouragement and support. Many activities that may be seen as pleasurable may not be so for learners with ASD, as they are not willing to engage with the social world. They have their own personal things that they regard as pleasurable. Mosner, McLaurin, Kinard, Hakimi, Parelman, Shah, and Addicott, (2019) shared that if the behaviour intended by reinforcement is achieved as predicted, then that reinforcement will be used to bring out that desired behaviour. If the reinforcement implemented no longer brings out the desired behaviour, it can be modified to produce it.

Teachers reported that reinforcement is also effective in making the learners engaged and participants in the lesson. They are encouraged to keep trying even if they have got something wrong. The effort that they put in is also important and encouraged. If a learner with ASD has got something wrong, encouragement to do better is given and they are shown the way that they should have done that task. Providing reinforcement at the same time as encouraging the desired behaviour seems to bring a rapid change of behaviour in the learners. The reinforcement is used to make sure that the desired

behaviour occurs again. It can include encouragement such as praise or clapping hands for the good behaviour

**Teacher A:** *“Reinforcement is used during class time, such as clapping hands if one has got it correct, or praising by saying words such as “Well done”. So that helps them to master whatever they have been taught. They don’t forget something they received encouragement for.”*

**Teacher B:** *“The reinforcement such as high-five is effective. The small things they do you make a big achievement, and adopt their thinking level to be able to communicate with them.”*

**Teacher C:** *“Encouragement such as clapping hands makes learners happy, and they repeat that behaviour. The encouragement occurs right after the desired behaviour.”*

**Teacher E:** *“I try to avoid discouraging them even if they did not do well. You explain the correct way they should have done something.”*

One teacher reported that intimidation has been effective for her in some instances to make the learner do what is required. Intimidation includes telling the learner that an authority will be called to deal with him/her if she doesn’t want to do the work. Since the learner fears and respects authority, she will participate as the teacher has requested her to do.

**Teacher B:** *“Some of my learners are becoming disobedient now, so I need to always use rewards or intimidation such as that I will go call the principal or their parents to deal with them, and then they do the work.”*

These findings reveal that motivation plays an important role in making the learners participate freely while enjoying the process. When learners are motivated they do not feel coerced to participate, but it feels like their own will to engage with the lesson. There are different ways that the learners can be kept motivated depending on the teacher’s strategy. Rewards are used as encouragement to the learners. Some teachers also reported using competition and intimidation to put learners in a working mood, and make them try to reach their potential.

#### **4.4.4 The importance of an environment for learners with ASD**

The environment must be safe, comfortable and suitable for the needs of the children to enable them to learn well (Ahmad et al., 2015). For an environment to be conducive it

requires good organisation and management, and the physical environment must be appealing to grab the attention of learners and promote learning. The classroom environment needs to be suitable for learners with special needs, where they can receive the attention and assistance they need (Ahmad et al., 2015). Teachers shared that learners with ASD sometimes behave in ways that seem strange, so they should be protected from harm when they do so. Learners with ASD should be able to enjoy themselves even when they are outside class as a way of releasing the tension of being in a class.

**Teacher F:** *“Some learners with ASD have sensory sensitivity, so may hurt themselves if there is a sensory stimulus that doesn’t sit well with them. There should be something that is protecting them because some may bang themselves on the wall, so the class should be a safe space. Learners with ASD are sometimes unable to assess the safety of an environment, requiring school staff working together to ensure their safety.”*

**Teacher C:** *“To make their learning experience fun they require things like outside equipment for them to enjoy themselves when they are not in class.”*

**Teacher B:** *“They have a lot of breaks for desensitisation, to get fresh air and be refreshed for the next lesson. Then we [teachers] have to work as a team with the school staff because some learners need to be walked to the bathroom, to ensure that they are safe at all times.”*

**Teacher G:** *“There needs to be a mat or a carpet in the floor because most of them like to relax, and some want to sit on the floor. A floor is a proper place to have games rather than having to go outside every day, because sometimes the weather is too bad for outside learning.”*

According to Abidoğlu, Ertuğruloğlu, and Büyükeğilmez (2017), children with special needs seem to benefit from education that is computer-aided. They actively participate when using the computer, and they remain actively engaged throughout the educational activity. Computers are also used as a reward system, and the education they provide can be individualised to best suit the needs of each learner. Other advantages of computers are that they provide flexible learning periods, and can be used to teach different skills. Computers allow learners to relearn skills that have already been learnt, and once they have mastered those skills, they can develop to the next level without waiting for the whole class to finish. Computers can be beneficial for learners with ASD

as they never get tired or bored, and can provide the sameness and predictability that ASD children depend on (Abidoğlu et al., 2017).

Teachers reported that they have attended workshops which talk about the assistive devices that are suitable for learners with ASD, but owing to the lack of funds, they are unable to get those devices for their learners. Learners with ASD are said to enjoy the electronic devices, and it may assist those who have communication challenges. Teaching learners with ASD with just paper and pen is not effective, as they require additional support such as educational toys to keep them interested.

**Teacher A:** *“They are different, and we have those who should be using electronics to learn better. We have a student that knows how to use a photocopying machine, which indicates that she may be able to use a variety of electronics, and it would assist her speech difficulties, but unfortunately we do not have enough equipment. We have been requesting it from the Department, but we have been waiting ever since.”*

**Teacher C:** *“Assistive devices are necessary, but unfortunately we don’t have them here at this school such as computers for learners with ASD that would keep them interested and attentive.”*

**Teacher G:** *“Assistive devices are crucial for the learning of learners with ASD. For example they are able to try something over and over in a computer until they get it right. Even if a learner didn’t understand in class, they would still access the lesson. Other learners are unable to read, and a computer would read for them. Other assistive devices could include things such as hearing aids.”*

A teacher finds it demanding to manage a whole class by themselves. Learners with ASD work better one-to-one; so it becomes a challenge if the teacher is alone, because some learners end up not getting the attention they require. An assistant is useful in helping the teacher manage the class. While the teacher is busy with teaching the assistant can assist with the learners’ personal needs such as behavioural problems, going to the bathroom or helping them understand the work; but unfortunately not every teacher has an assistant.

**Teacher E:** *“Some are able to do well if you give them one-to-one attention. Another problem is that not all of us [teachers] have assistance, so it is hard to give them the individual attention they need.”*

**Teacher F:** *“We rely more on one-to-one attention – that is why we have small classes. I have divided my class into three different sections based on their abilities – the strongest, the middle ones and the poorest ones. Most of the time is spent on the poor side because they require more one-to-one attention.”*

**Teacher B:** *“They like their own space. There are those who want to go outside and those who want to remain in class, so what helps me is that there is another teacher who assists me, so I will stay in class with those who want to remain in class, and she will go outside with those who want to go outside.”*

Teachers reported that every learner with ASD requires to be monitored all the time. The number of learners in class is important so that the teacher can monitor them. The smaller the class of learners with ASD the better, as each learner is able to get personal attention. Learners with ASD might end up harming themselves or others around them if they are left alone without guidance. They like to have their own personal space; the classroom must be able to provide that freedom.

**Teacher B:** *“They need their individual desk as they need to have their own personal space. For now we have these round desks to be able to see them at once and for them to be at the same level, since there are many in a class. The class should consist of six learners or fewer, but sometimes it depends on the severity of the learners’ disabilities. The greater the severity, the more the attention needed for lesser learners.”*

**Teacher D:** *“They would be more comfortable in their own space and at their own desk, as they are sometimes not comfortable with someone next to them. Each learner should have their personal space, and not feel crowded.”*

**Teacher G:** *“They need to be fewer in a class so that the teacher can monitor them all and give them the attention they need.”*

These findings indicate that the environment of learners with ASD is important, and should be specialised for their needs. Safety should come first. The majority of learners with ASD could benefit from assistive devices and educational toys to keep them more engaged in the educational activity. An assistant, if available, is there to assist a teacher with providing an undisturbed lesson. Learners with ASD learn better with one-to-one instruction, so having a smaller class makes that possible. Classrooms of learners with ASD should be spacious enough to allow learners to have their personal space.

#### **4.4.5 The need for continuous teacher development for learners with ASD**

Hamed et al, (2016) consider teachers' professional development a process that requires time. Characteristics of learners with ASD may be different from those of their typical peers, which makes schooling difficult for them. Teachers who are not properly trained to deal with learners with ASD find it hard to deal with their behaviour such as requiring sameness, repetitive behaviour, sitting or standing in awkward positions, and sometimes aggression (Boujut, Dean, Grouselle, & Cappe, 2016). On-going training helps to alert teachers to the available intervention. The knowledge becomes restructured based on new research findings, so teachers need to keep developing their knowledge to be updated on the available information, avoid burn-out and increase their competence.

Teachers mentioned that they have attended workshops that educated them about learners with ASD. Knowledge from the workshops that the teachers are expected to implement is viewed as disabling for the teachers, as there is not much support for implementation. Sometimes the implementation includes the specialised equipment that not every school has, and the teachers end up not benefiting from the workshops. Not being able to implement an intervention makes them feel incompetent. Teachers of learners with ASD reported providing one-to-one instruction, but receiving very limited training in it, and stated that more training would be beneficial for them. Teachers have few workshop days, and they may not be sufficient to understand ASD learners. After training has taken place there should be a way for them to receive feedback for implementing the strategies trained in so that they will be able to learn from their mistakes, and improve themselves. While teachers have made it obvious that they require further training, it is not clear how often and how long it should be. During the training the the process for implementing strategies should be clearly indicated (Brock, & Carter, 2015).

**Teacher A:** *"I have attended a workshop. The training was to teach us what ASD is, the symptoms, how it is diagnosed. Unfortunately, there are no machines that will tell you if someone is autistic or not, so the person is diagnosed by a different therapist. We go to the workshop and get the information, and come back to identify the learner who would be suitable for a certain machine, but machines are too expensive, so the information ends up not being useful."*

**Teacher B:** *“I have attended one- or two-day workshops. They do help you to understand the child, but implementing strategies is a challenge; you end up doubting yourself. It would be better if workshops were continuous. Sometimes you go back to the school and you don’t know where to start to implement what you were trained in. So we still need a lot of workshops.”*

**Teacher C:** *“I have attended workshops that have been arranged by the school where they teach you about how children with ASD behave so that you can identify them in class. One workshop was about identifying symptoms, but not exactly about teaching or managing the learners in class – but it helped in understanding the learners.”*

**Teacher E:** *“I have attended a three-day workshop where they taught how to identify a child with ASD, and there were case studies of the typical behaviour of a child with ASD. We focus on one-to-one teaching, but we have not been trained in how to manage that as some children are left behind if you focus on only one child.”*

**Teacher G:** *“Teachers need proper training since they have many challenges because training helps you to understand their behaviour, and ways to deal with it.”*

**Teacher F:** *“We need continuous development as educators, and it should be frequent to keep us refreshed. It would be better to have feedback to know if we are performing correctly.”*

One teacher reported to have never received training specifically for learners with ASD.

**Teacher D:** *“I have not received the training that is specialised and specific for learners with ASD. I have been trained only for learners with special needs in general.”*

These findings indicate the importance of continuous development to keep the knowledge of educators up to date. Teachers have challenges with implementing the interventions for which they were trained in the workshops. The workshops the teachers have attended have amounted to only a few days, which are not enough for understanding a learner with ASD. Teachers would like to get feedback on their implementation to know if they are on the right track. The workshops they have attended sometimes include equipment that not every school can afford.

#### **4.4.6 The importance of a multidisciplinary team for learners with ASD**

According to Syriopoulou-Delli, et al. (2016), collaboration between parents and the teacher helps to achieve a smoother collaboration of the multidisciplinary team, which

may include a speech therapist, physiotherapist, medical doctor, occupational therapist, psychologist and other specialised services. Having a multidisciplinary team can be beneficial for providing the health care service and positive educational outcome to learners with ASD, and can be used to plan the intervention of the individuals and debriefings among the professionals.

Teachers reported that sometimes they feel unfit to perform duties in the field they are not trained in. The purpose of having professionals from various fields is to help incorporate different sets of skills to provide the learners with a holistic approach to address the difficulties caused by their disorders. Each professional is seen as an expert in their field (Sinai-Gavrilov, Gev, Mor-Snir, & Golan, 2019). Teachers stated that the districts' professionals take a long time, and end up delaying the child.

**Teacher A:** *“We have only an OT [occupational therapist] here in school, so if the learner has other challenges such as speech we write to the district and require the service of their speech therapist, even though that takes a very long time.”*

**Teacher B:** *“I have a student who is partially sighted and can't see properly. He needs something such as an assistive device, maybe a computer with larger fonts. Since you are only trained to be a teacher you need to go out of your way to be creative, and think how you will teach him. I have been trained only for learners with full sight, but a multidisciplinary team would come up with different ways to assist the child. He is one of the children who have a good memory, and he is good with oral work, but he has a problem with written work.”*

#### **4.4.6.1 The importance of an individual educational plan (IEP) for learners with ASD**

According to Antshel et al. (2016), an IEP is used to help the learner perform better in schoolwork. It is based on the learner's strength, and is used to make up for the impaired parts. An IEP is designed for each individual, and includes the instructions that will be suitable for him/her to understand. Once the IEP is implemented the teacher can evaluate its effectiveness, and changes will be made if necessary. A multidisciplinary team provides a safe space where everyone can share their feelings and understanding as professionals regarding the learner being discussed. Antshel et al. (2016) also mentioned that in the development of an appropriate IEP a psycho-educational evaluation is needed to know what the suitable support is that required.

The collaboration among professionals can assist in developing an effective IEP that is integrated into the curriculum, and various instructional methods that are effective for an individual (Strunk, Leisen, & Schubert, 2017). One teacher mentioned the importance of a multidisciplinary team in developing IEP for learners

**Teacher B:** *“Learners with ASD need the multidisciplinary team because if a child has ASD there needs to be a conference to discuss the support for the child with different therapists, because a teacher only come from one angle. Sometimes I find myself doing things that are not in the curriculum that I am not trained to do. We need a multidisciplinary team also for understanding the learners’ cognitive functions. Assessing their cognitive functions gives an opportunity to know about the strengths and weaknesses of a learner.”*

These findings indicate that a multidisciplinary team is important for learners with ASD in the school environment. Each professional comes with strategies from their field that could assist the learner to achieve more. The multidisciplinary team is involved in the drawing up of an IEP to find effective strategies for learners with ASD. In the development of an IEP it is important to know a learner’s cognitive function so that goals set do not exceed the learner’s potential. The learner’s strengths are used to create the IEP. Having the various professionals on hand would make the work of teachers much better.

#### **4.4.6.2 The importance of parental involvement in children’s education**

Syriopoulou-Delli et al. (2016) understand parents-teacher collaboration as a way to help with the development of learners’ communication skills. When teachers and parents work together they give the learner an opportunity to receive support from both sides. With communication, parents can know which part of their education their child needs more support in, and then continue with that support at home. When there is communication both parents and teacher can prepare the learner for a change that will occur such as school holidays, changing transport or changing location. Learners can be taught different skills in both the home and educational environment.

The parents’ involvement helps children achieve more academically, and engage in groups (Schultz, Able, Sreckovic, & White, 2016). While some teachers blame the parents for not playing an active role in their children’s education, others understand that some parents do not have enough time, knowledge and skills to provide support for their children at home. Some parents become involved only after they have been invited by

the teacher, as they need guidance and advice from the educators about ways they can be involved in their children's education (Schultz et al. 2016).

Teachers reported that parents are the people who know their children better than anyone. Collaborating with the teachers could assist them with important information about the learner. Strategies to assist the learner could develop from the knowledge that the teacher and parents have about the learner. Parents could assist with the effective behavioural management of their child. Teachers could be warned about things that could trigger discomfort in learners with ASD. Teachers also mentioned that black culture does not have enough knowledge or awareness about special needs children, while some feel that parents also need a break from taking care of their ASD learners as it is a full time job; sending learners to school gives them time to focus on other things. Lack of collaboration could result in parents not knowing how to provide support for their children, and end up doing things that would not assist their progress. A teacher explained that parents do not understand the full condition of their children, or their capabilities, and some parents misunderstand the purpose of a special school.

**Teacher A:** *“There are parents who show little support for their children, such as sending them to school in dirty uniforms, or with no lunch boxes and you end up involving a social worker. Only then you may see changes. Some parents have difficulty because they have not accepted their children's condition, but if they see the teacher showing love and care to their children while they do not as parents, it gives them some kind of encouragement because you really start to see some changes from them.”*

**Teacher B:** *“The background of many black African families is that parental involvement is lacking. The only thing they understand is that they their only job is to send the child to school. We as teachers need to give as much support to the children as possible, and be everything to the child.”*

**Teacher C:** *“It is also difficult for parents, and sending their children to school is a way of escaping from the distress. Some learners can't be left alone: they need to be monitored 24/7 because they do whatever comes into their minds at that time, so the parents also need a break to do other things such as house chores. Parents' collaboration, though, can help the teacher about the strategies they use at home in a trial and error process.”*

**Teacher D:** *“Parents should always be involved, but some parents are not that interested in their children's education. Parents can assist teachers with ways to handle*

*their child, and what is effective strategy for that child. Those parents who come and become involved give you the courage as a teacher to keep going.”*

**Teacher E:** *“I became discouraged from giving homework because they would come the next day, homework not done, or they forgot it at home, and sometimes if it was done you could see it had been done by the parents, so the children weren’t benefiting. Then I stopped giving them homework”.*

**Teacher G:** *“There needs to be consistent communication between the parent and the teacher because everything that was done in school the parent needs to continue with at home. That makes it easy to identify improvement as it occurs with the learners. Some parents still don’t fully understand their children, and do not understand what a special school is as they think it is just somewhere to keep them during the day. They don’t know that they also learn.”*

These findings revealed that parental involvement is very important for learners with ASD. It can assist educators with additional information about managing the child, and effective strategies used to discipline him/her. Some teachers did detect laziness in parents, or excuses for lack of involvement while others detected lack of understanding. Collaboration from both parties assists learners by giving them educational support from both sides. When parents and the teacher are able to communicate about the decisions regarding the learner, it makes the learner feel more secure.

#### **4.5 OBSERVATION**

During the observation, the researcher observed the teacher and learners in their natural setting to gain a precise reflection of their natural behaviour. The researcher observed one lesson, and there was no interaction with the learners with ASD.

**Subject: Puzzles and Coloring-in**

**Time: 10:00**

**Date: 11 March 2020**

**Language: IsiZulu**

**Teacher’s oral proficiency: very good**

**Description of the lesson**

The teacher started with enthusiasm and explained to the children that they would be doing puzzles that day. While she was telling the learners about the topic she had the puzzles in her hand, pointing to them in order to get the learners' attention.

The teacher mentioned other activities such as coloring-in, and then had to go up and down. She set a learner's chair to at their level. The instructions were broken down into small portions such as "Which piece goes in here?" Once the learners got that piece, the question was repeated for the next picture. There was encouragement for each of the correct pieces found such as high fives, or well done. The teacher first demonstrated what needed to be done, and asked the learners to execute that task.

There was a learner with a speech problem who kept making strange sounds, which distracted the other learners. She also had behavioral challenges as she kept standing up and switching the lights and air conditioner on and off. The teacher kept reminding the learner to sit down and focus on the activity. The teacher spent most of the time managing her behavior and giving her one-to-one attention while the others were left unattended. An assistant teacher would have been of benefit to them

The teacher was patient and repeated the instructions. One learner worked well alone and focusing on his work, which was colouring-in. The teacher praised his good behaviour, and the other students wanted to change from the puzzles to colouring-in as well.

The lesson was changed to colouring-in, and they all completed the task. Each learner got a reward based on their individual preferences.

#### **4.5.1 The researcher's interpretations**

The repetition and breaking down of instructions was to enable the learners to understand easily. The demonstration was another way of giving the instructions non-verbally to make sure that every learner understood what was expected of him/her.

The teacher understood each learner, kept calm during the behavioural challenges, and tried to manage them by consistently telling the learner what the correct behaviour was. The encouragement was used to motivate the learners to maintain focus in participating.

Most of the learners preferred to do the colouring in, which led the whole class into doing it because the others got praises for doing it. The lesson plan changed and mainly focused on the colouring-in. leaving out the puzzles.

Encouragement was used such as high fives and “Well done” for every little step accomplished, which was effective in encouraging the learners to try harder. Learners were given a task for a few minutes, and a break was taken to cool down. Each learner got a different reward for participating well and completing the tasks. Learners were very happy as each reward was based on their preferences.

#### **4.6 SUMMARY**

This chapter presented the results that emanated from data collected through the semi-structured interviews and observation with the teachers of learners with ASD. Thematic content analysis was used to gather the themes and subthemes of teachers' experiences with teaching learners with ASD. The reported data were used to answer the research questions. The next and final chapter will provide the conclusion, the limitations of the study, and recommendations for future research.

## **CHAPTER FIVE**

### **CONCLUSION AND RECOMMENDATIONS**

#### **5.1 INTRODUCTION**

The purpose of this study was to find ways to enhance learning participation among learners with ASD in a resource centre in Pinetown district. The study aimed to investigate the effective teaching strategies that teachers use to teach learners with ASD, and keep learners interested and engaged in the lesson. This chapter includes a discussion of the findings in relation to the literature review. It also looks at the limitations of the study and areas for future research, and provides a conclusion.

##### **5.1.1. Discussions that aim at answering the following research questions:**

- What are the features of ASD that influence learners' participation in learning?
- What are the available pedagogical practices that could enhance the participation in learning of learners with ASD?
- What are the necessary support mechanisms to improve the learning of learners with ASD?

##### **5.1.2 Themes and subthemes that emerged from data analysis to answer the research questions.**

###### **A. How the characteristics of learners with ASD affect their participation in class**

- The impact of behavioural challenges of learners with ASD on class participation.
- The influence of comorbidity and treatment on active engagement.

###### **B. ASD learners' participation and interest in physical activity.**

###### **C. The creativity and flexibility of teachers of learners with ASD.**

- How motivation keeps learners with ASD actively engaged in class participation.

**D. The importance of environment for learners with ASD.**

**E. The need for continuous teacher development for learners with ASD.**

**F. The importance of a multidisciplinary team for learners with ASD.**

- The importance of an individual educational plan (IEP) for learners with ASD
- The importance of parents' involvement in their children's education.

All of these factors assisted in understanding ways to enhance learning participation in learners with ASD.

## **5.2 INTERPRETATION OF THE FINDINGS**

The intention of this study was to explore a support mechanism for teachers to use to enhance learning participation in learners with Autism Spectrum Disorder. While the characteristic features of learners with ASD affect their learning participation, their behaviour, too, can be challenging, and teachers need to monitor it for teaching to be fruitful. Learners with ASD need to be provided with accommodation so that they can participate in class (Jansen, Petry, Ceulemans, Noens, & Baeyens, 2017). Thereafter, teachers must look for discrepancies with a child's effort and the performance level to identify if the learner requires assistance. The classroom provides a platform where both learners and teachers learn from each other through the interaction.

Teachers need to create an appealing, motivating and safe environment for the learners with ASD in order for them to want to be actively involved in the lesson. Physical activity appears to be enjoyable and effective for learners with ASD, and seems to have both cognitive and behavioural benefits for them. An understanding of the condition is one of the important elements for teachers to be able to find accommodation for the areas that learners with ASD seem to lack. Teachers emphasised the importance of continuous development and a multidisciplinary team which is supported by parental involvement, as that provides the learners with all the support they need. The themes and subthemes illustrate the strategies that teachers use to increase the participation in learning of learners with ASD.

### **5.2.1 What are the features of ASD which influence learners' participation in learning?**

According to the findings of this study, the characteristics of learners with ASD seem to be the main influence in their poor class participation. The lives of learners with ASD are impaired in different domains such as deficient social interaction and communication, rigid, repetitive behaviour, and a lack of interest in learning (APA, 2013) which is essential for a smooth educational process. This makes the learners vulnerable to a poor and unpleasant educational process. Teachers in this study felt that the lack of understanding of a socialised way of living in learners with ASD becomes an obstacle for them to easily engage in a classroom. Teachers are then left with an obligation to find teaching approaches that will be effective for learners with ASD.

Teachers in this study reported that craving or responding negatively to sensory stimuli is one of the characteristics presented by learners with ASD. Learners with ASD may appear indifferent to various sensory stimuli such as touch, smell, sound, light, movement, texture, heat, colour, or cold. They may respond with distress and discomfort to the sensory input and sometimes display violent behaviour. Therefore, making learners with ASD avoid being in unfamiliar or crowded places where they are unable to make predictions of their situation is a way teachers protect learners from sensory reaction. Teachers were concerned about the unpleasant impact of their sensory sensitivity on learners with ASD, and emphasised the importance of understanding it to be able to avoid it as much as possible.

There seem to be a link between the craving for and/or indifference to sensory stimuli and the increase in learners' anxiety during the teaching process, which leads to their poor concentration on the task at hand. Accommodation is given to learners as a way to try to manage their behavioural responses to sensory stimuli, as they often become destructive to the rest of the class if they are unattended to. Saggars, Klug, Harper-Hill, Ashburner, Costley, Clark, Bruck, Trembath, Webster, and Carrington, (2018), acknowledged their sensory experience to be the strongest influence on the participation of learners with ASD in school.

ASD learners have rigid behaviours such as wanting to maintain routine all the time. Teachers stressed the importance of sustaining sameness for them. Sudden change causes distress to them as they prefer to be familiar with situations to be able to make predictions. Learners with ASD are reported to be inflexible, making them behave strangely in unfamiliar places. Their inflexibility makes it hard for teachers to make

sudden changes in arrangements such as places to sit, or the time for lunch, everything needs to be consistent. Burgeson, (2017) mentioned that learners feel like having control over their physical environment as when they are given the opportunity to choose their own seating. Teachers believed a way to deal with the need for sameness is to prepare learners in advance if a change is to occur

However, teachers had found an alternative way to use the need for routine in a helpful way for the learners. The routine is used to teach learners with ASD important information and skills such as biological information through everyday repetition. The constant repetition of information makes learners master it in a short time. Teachers transformed the routine of learners with ASD by implementing the positive element in their routine. Thus if learners have the routine of taking their shoes off before entering the class, teachers encompass the routine by making them put their shoes in their school bag for safe-keeping immediately after taking them off. Routine has been effective in teaching basic skills to ensure that every learner is ready for the school environment.

However, the insistence on sameness can sometimes become a challenge as it restricts learners with ASD to having a limited number of familiar people in their lives. They thus experience difficulty if there are changes in the school routine, class teacher or school holidays. Teachers then find means to redirect the learners' routine. When a year begins, it is a must that every teacher readjusts the home routine and slowly introduces learners to the school routine.

Sometimes as way of communicating, some learners with ASD repeat the words of others without having a full understanding of the meaning of those words. This is known as echolalia. This may interrupt the teacher during class time as learners with ASD are unable to control their echolalia. Echolalia makes it impossible for teachers to be able to assess the level of knowledge that the learner has as they repeat things they have no understanding of. Teachers mentioned being unable to tell whether the learner with echolalia understands the content of the educational activity.

Learners with ASD are unable to take an interest in what others are saying, understand social rules, have a flowing conversation, or understand others' emotions. This may be due to their impairment in the social interaction and communication domain. Learners with ASD lack the developing, maintaining and understanding of relationships with other people (APA, 2013). This causes them to lack interpersonal relationships. Learners with ASD are unable to listen to their peers and take the opinions of others (Sparapani et al.,

2016). Teachers felt that the lack of friends for learners with ASD only restricts them from asking help from peers whenever there is work forgotten or misunderstood.

Their limited understanding of friendship makes learners with ASD have poor social skills and lack of opportunity to improve them. Facilitating group/team work is usually a failure as these learners are unable to make compromises, and are only interested in their unique topics. During lessons teachers try to provide additional information for learners such as non-verbal cues, which may include facial expression, body language or gesture, but learners with ASD are unable to understand additional information.

These learners may appear disrespectful as they lack understanding of the socialised way of behaving. Teachers in this study felt that learners with ASD are unable to understand social boundaries, and this leads them to engage in inappropriate behaviour. Teachers felt that learners with ASD are unable to readjust their behaviour to best suit the school environment, making them sometimes destructive in class. Teachers are worried that these learners may come across people who may harm them as they are unable to assess the extent of danger in a situation. Learners with ASD are seen to be less ready emotionally to be in school, and tend to externalise their behaviour, which leads to poor relationships with their teachers (Marsh et al., 2017).

Learners with ASD are not only unable to understand the emotions of others, but they also have trouble with regulating their own emotions. The emotional state of learners with ASD has an influence on the level of participation they will show in the classroom (Meng, 2017). When learners with ASD are in an uncooperative mood, teachers first deal with the emotional distress so that learners will be able to be fully part of the lesson. Learners' emotions are influenced by their behavioural and social elements and of those around them. Learners with ASD are unable to change their emotions whenever they go to a new environment. Teachers need to monitor these learners so that they do not hurt themselves or others whenever they are in an unstable or antipathetic mood. This is supported by Saggars, et al. (2018) and Fage, Consel, Etchegoyhen, Amestoy, Bouvard, Mazon, and Sauzeon, (2019), who believe that learners with ASD are seen to have higher social-emotional needs which have an obstructive impact on their learning process. Learners' poor emotional regulation may make them more sensitive to stimuli, hampering their learning and others' understanding of them (Higuchi, Ishizaki, Noritake, Yanagimoto, Kobayashi, Nakamura, & Kaneko, 2017).

Teachers found the behavioural challenges of learners with ASD difficult to control. The learners sometimes engage in behaviour that teachers perceive as abnormal. Even

though learners with ASD have the same disorder, their behaviour is unique to each individual. If teachers deny learners the chance to perform their self-satisfactory behaviour they become distressed and distract the whole class. Some of the behaviour of learners with ASD can be harmless, but sometimes it can be dangerous to the learner and others. Teachers have developed a behaviour support system that allows the behaviour to occur in class for a short time. This allows teachers to monitor the behaviour, ensure the safety of the child, and prevent the behaviour occurring outside without supervision. After the short spell of the behaviour, it's back to work so that the learners can understand the classroom routine. Teachers in the study by Khasakhala and Galava (2016) also believed that positive management strategies are effective in managing the challenging behaviour of learners with ASD.

Teachers are unable to monitor the behaviour of learners with ASD all the time, and some learners will behave completely differently when they are outside. A recent study by Adams, Taylor and Bishop (2020) mentioned that the peers of learners with ASD may treat them badly based on the behavioural challenges they endure. This study also mentioned a link between low IQ and more problematic behavioural challenges. The cause of misbehaviour in learners with ASD is unknown (Higuchi et al., 2017). However, Martinez, Werch, and Conroy, (2016) assume that learners with ASD sometimes have challenges with communication, and the behavioural challenges may be a way of trying to communicate their needs.

Teachers were worried that the non-nutritious items eaten by learners with ASD would actually cause harm to their health. Some learners are restless and cause chaos during class. Learners with ASD are easily influenced by other learners as they usually adopt their behaviour.. It becomes a challenge if disruptive behaviour such as rocking in a chair or banging a desk is adopted; teachers mentioned that they first deal with the first person to initiate the behaviour, and others follow and stop. However, the adoption of behaviour can sometimes be positive as learners also copy good behaviour such as actually doing the work in class and participating.

According to Khasakhala and Galava, (2016), different fields (biological, psychological and socio-cultural) have tried to explain the cause of the challenging behaviour in the learners with ASD. The biological perspective relies on medication as a way to manage it. The learners take medication as a way to eliminate the difficulties caused by the disorders, but teachers have found the medication to have side effects on learners with ASD. Even though the learners may be taking the same medication every day, they

sometimes respond differently to the medication. On some days they will become hyper and uncontrollable, but on other days they become slow and sleepy which effects their participation in class. A study by Orlik and Halawa (2016) mentioned that side effects of the medication on learners with ASD can include weight gain, and problems with behaviour and emotional control.

Comorbidity is universal (Shamsad, 2019). A learner with two disorders is more impaired than a learner with one disorder. Teachers found a challenge in managing learners with comorbidity because they would focus on the symptoms of one disorder, while the symptoms of the other disorder would also appear. It is difficult to find a teaching strategy that is effective and precise for learners with comorbidity. The most common comorbidity reported was ASD with ADHD and/or speech problems (Llanes, Blacher, Stavropoulos, & Eisenhower, 2020). These comorbidities are seen to cause challenges in all the important areas of education (Ibrahim, 2020). Learners are given additional support to help manage the deficits caused by the other disorder.

### **5.2.2 What are the available pedagogical practices that could enhance the participation in learning of learners with ASD?**

The majority of teachers in this study found physical activity to be one of the effective strategies to motivate learners with ASD to participate in a class. Physical activity is popular because it does not require specialised training; so many teachers are able to facilitate it. The majority of learners with ASD have difficulty with communication and speech, but physical activity provides them with an opportunity to be part of the lesson. The benefits of physical activity are academic, behavioural and healthy (Bittner, Rigby, Silliman-French, Nichols, & Dillon, 2017). Teachers felt the need to supervise and monitor the physical activity as a way of providing support for the learners with ASD. According to Holland, Holland, Haegele, and Alber-Morgan (2019), sometimes learners with ASD find it difficult to generalise the skills learnt in physical activity to other situations. That suggests that teachers need to implement strategies that assist with the generalisation of the skills by providing a setting that has common stimuli that enable learners to generalise their skills.

Physical activities are based on social interaction and verbal instructions (Bittner et al., 2017). Teachers were enthusiastic on the high concentration level in learners with ASD during physical activities. Having trouble with reading and writing is believed to be one cause of the great enjoyment of practical activity for learners with ASD. Practical engagement lessons make them able to remember the task even in a written form.

However, teachers mentioned the importance of a personal space for them away from their peers without ASD during physical activity. The important elements to consider for the physical activity include a safe environment and human comfort. Holland et al. (2019) believe that parents should be informed about the skills taught by physical activity to be able to promote and reinforce those behaviours in different environments.

Bittner et al. (2017) believe that in physical activity the teacher should first demonstrate what needs to be done and observe the learners trying out the activity while the teacher gives feedback on how to improve them. Even though physical activities are enjoyable and easily understandable for the majority of learners with ASD, learners should be able to read and write basic important information such as personal identifying information. Teachers stressed the importance of pushing for this information to be known by the learners with ASD, and different methods are implemented to make this possible. Findings from the study by Ibrahim (2020) agree with the importance teachers knowing and understanding the abilities of learners with ASD, and modifying their teaching methods to best suit the learners' abilities so that they will learn. Teachers sometimes make dots for learners to join and keep practising, and sometimes they cut alphabets into pieces for the learners to be able to match the alphabets to their names.

Play method is acknowledged as an important factor in keeping learners with ASD highly inspired to participate in school activities. The teachers this study were positive about implementing games into the curriculum as a way to make learners with ASD enjoy playing games without realizing that they are learning. A game teaches learners different skills which they may use in different environments, such as waiting for their turn and socialising with other learners. A game's high effectiveness is linked to the pleasure the learners have in playing it.

Storytelling is another technique that teachers use to lure the interest and focus of learners with ASD. It is found to provide relaxation for the learners, and the stories are based on the curriculum themes. Storytelling is perceived as an active way to demonstrate certain skills for learners with ASD. Sometimes learners are required to answer questions based on the story, and this improves their listening skills, which are important in the school environment. Learners with ASD are seen to be enjoying story time, and the environment should be suitable to provide relaxation. A successful social story is entertaining, easily readable and memorable to learners with ASD (Sani-Bozkurt, Vuran, & Akbulut, 2017).

Teachers in this study mentioned the importance of flexibility and creativity for the effective functioning of a classroom of learners with ASD. Creativity and flexibility are seen as a way to provide meaningful learning experiences for them. Teachers are given the opportunity to bring real-life situations into the classroom which require real-life problem solving that is blended with the curriculum. Teachers do not change the curriculum, but instead are creative and flexible in ways of it (Holland et al. (2019). It is essential for the teacher to understand each individual to be able recognise the effective teaching method that will accommodate him/her.

Teachers felt that they are given the task to think creatively and find ways to grasp the attention of learners with ASD to increase their class participation. Teachers use appealing techniques to encourage them to be interested in the lesson, such as underlining or bolding the important information, and/or using large and colourful fonts. The learners that are left behind are then given individual attention to bring them up to speed with the other learners.

Implementing the learners' preferences with the curriculum is understood as a technique that arouses the curiosity of learners with ASD about the educational activity. Using learners' preferences enables easier and faster understanding. Teachers judged the learners' preferences based on the excessive amount of time used in engaging with an object or talking about a certain topic. Their preferences inspire them to take responsibility for their learning experience by taking active roles in participating and asking questions. As learners with ASD are unique, so are their preferences. These can then be used for those learners left behind as a faster way to make them understand.

Understanding instructions is a key element in class participation. For active participation learners are made sure to be understanding instructions. Teachers then use different instructions to maximise their understanding. Even though the teachers used both verbal and written instructions, it was the verbal instructions that seemed to be understood by the majority of learners with ASD. In providing instructions, teachers try to assist with additional information such as by pointing or repeating. Teachers mentioned that some information is broken down into manageable portions to be easily understood by the learners. Nagro, Fraser and Hooks (2019) believed that when the instructions are implemented with a visual strategy it extends the educational areas for learners, and improves certain skills.

Teachers acknowledged learners' progress based on their unique working paces. The teachers strongly believed that every learner is capable of learning something, although

the amount of time taken to know that particular thing differs for each learner. While some learners can master something instantly, others may take a whole year, but teachers acknowledged both as achievement. Learners working at a slower pace are given additional time to catch up. A teacher who does not understand the significance of individual pace may end up doubting his/her capabilities as a teacher.

Teachers are sometimes faced with the task of changing the lesson planned for the day. Learners with ASD are considered to be rigid, pushing teachers to be flexible. It is seen as a productive choice to change the lesson plan if most of the class do not want to engage with it. Learners with ASD tend to participate more in lessons that are personally chosen by them. The themes of the lesson, however, still have to be based on the curriculum.

Teachers were confident in the efficiency of the visual objects in increasing the learning participation of learners with ASD. Reading through pictures is a way learners who are unable to read compensate for their limitation, and learners with ASD use this technique also in the outside world. Learners with speech difficulty are given a way to express themselves by using pictures. Teachers believed that the benefit of the visual objects is that they last longer in the memory of learners with ASD. Another factor that was brought up was that pictures fascinate learners with ASD, and inspire them to concentrate more in class. Meng (2017) identified learners with ASD to have strength in visuospatial abilities, leading them to be focused during a lesson with visual content. Visual support helps learner with ASD predict the sequences of events, which reduces their anxiety. Macdonald, Trembath, Ashburner, Costley and Keen (2018) identified visual objects to provide independence in learners with ASD.

Visual support is seen as effective in helping learners to be more engaged with academic work. The visual objects can be used to teach learners appropriate behaviours and socially accepted skills (Martinez, et al., 2016). Learners with ASD tend to participate more in a task if they are given visual support (Macdonald et al., 2018). Shamsad, (2019) pointed out that learners with ASD are characterised by many challenges, but they also have strengths such as remembering vivid details for a long time, and are stronger in things they have seen. Visual strategies help with creating structure and improve understanding of the curriculum in learners with ASD (Nagro et al., 2019)

There is a link between participation and motivation. Motivation is seen as a driving factor for learners with ASD to show interest and participate more. An interesting topic is regarded as a way to increase motivation in learners. Their eagerness to learn or

participate is pushed by the pleasure that is achieved in doing so. Motivation gives the learners with ASD a purpose and direction for their behaviour. Reinforcement is also used to promote appropriate behaviour (Rivera, Gerow, & Kirkpatrick, 2019).

Learners with ASD are rewarded by their teachers for showing desired behaviour. Teachers reward learners as a way to try and condition the learners into understanding that as long as they display that kind of behaviour they will get something favourable in return. Rewards make learning more enjoyable for learners with ASD. Teachers shared different experience about the kind of rewards that should be given to learners with ASD. While some believed that rewards should be based on different preferences as learners with ASD are unique, and once a reward becomes less effective it must be changed. Other teachers believed that the rewards should be the same for every learner, and they should be a top prize that everyone could work towards. A teacher must find something that is commonly loved such as food, money or a star. and use it as a reward

Competition is believed to motivate learners for high achievement. One teacher believed letting the learners know that the rewards are limited motivates them to put more effort into achieving one. During the time of limited rewards, no learner wants to be left behind, and the number participating increases.

Another teacher emphasised the importance of explaining to the learners with ASD why they are receiving a reward as some of them do not understand the socialised way of living; they are not able to form an understanding of it on their own. If they are not given the reason for receiving rewards, they will not be able to make a connection between the behaviour and the rewards.

Encouragement is significant in motivating learners with ASD to participate more. Teachers encouraged them to keep trying even if they were doing the task incorrectly. Learners are encouraged and praised for the effort they have put into the lesson. Encouragement makes learners with ASD know and feel that it is okay to be who they are. Encouragement given at the same time as the desired behaviour is believed to bring rapid behavioural change. As noted earlier, the encouragement that teachers use can include high fives, handclapping or praise.

Teachers recommended that the classroom of learners with ASD should be suitable for learners with special needs. This means that the environment should be comfortable and safe for education to take place. As teachers mentioned, learners with ASD are sometimes unable to assess the extent of danger in a situation, and display strange

behaviour. The environment should prevent learners from being harmed. The material used for the education of learners with ASD should always be present for a successful teaching and learning process. The outside environment should also enable them to release the tension of being in a class, and enjoy themselves. They have difficulty with learning in a noisy environment, especially those with hearing problems (Benade, 2019).

Computer-aided education is essential for learners with ASD. Most of the teachers believed in having computers in a classroom. Computers are assumed to enable positive reinforcement and help the learners to be engaged throughout the lesson. The use of technology for special needs children is a growing field. It is also seen as the most effective support that can be provided to learners with ASD (Saggers et al., 2018). The advantages mentioned of using computers for learners with ASD included setting them to best suit the level of the individual users; learners can use them at any time; computers provide learners with an opportunity to learn tasks that have already been learnt in class; they allow learners to move to the next level without having to wait for the whole class; and they never get tired of providing the same information over and over.

According to Sani-Bozkurt et al. (2017), learners with ASD may benefit from multimedia content as they can actively engage with the content and not just watch it, but select whatever they want. Multimedia includes texts, animations, images, sounds, videos and graphics. Sankardas, and Rejanahally (2017) believe that limited interest in socialising with other learners is identified as the reason for the positive result of the use of computers by learners with ASD. Unfortunately, not every school is able to afford to have computers in the classrooms such as the resource centre where this study was conducted. Teachers mentioned that most learners with ASD have difficulty with communication, and are disadvantaged if there are no computers to assist them.

Teachers reported that the workshops they have attended proved that electronic devices are very useful for learners with ASD as a way to provide educational support to those in need. Electronic devices are seen to be effective for learners who have trouble with reading and writing. Sani-Bozkurt et al. (2017) believe that when learners are given the opportunity to be able to manipulate data on their own, they have an increased enthusiasm for the learning process. A study by Stokes (2017) considered creating a profile for learners with ASD to check their abilities, needs, preferences and skills so that they can handle the content of the multimedia. The dislikes of learners, such as a barking

dog, should also be considered when there is implementation of multimedia games (Stokes, 2017).

### **5.2.3 What are the necessary support mechanisms to improve the learning of learners with ASD?**

Without an assistant, a teacher takes time out of his/her teaching and to deal with the behavioural challenges of learners with ASD (Nagro et al., 2019). Learners with ASD work efficiently if they are given one-to-one attention, and that requires a teacher to have an assistant to help with the work load and be able to reach every learner. The assistant helps the teacher by attending to the needs of the learners, while the teacher focuses on the lesson of the day. The assistant may identify learners who are having trouble, manage behavioural challenges or help learners with personal needs such as going to the bathroom. The teachers found the workload and personal demands to be overwhelming if there is no assistant to help them.

Learners with ASD need to be monitored all the time, and a small class is ideal for that process. In a small class each learner with ASD is able to get his/her own individual attention. Teachers are able to easily identify challenges that learners face. The classroom should be able to provide learners with ASD with personal space. It should include individual desks that provide learners with their freedom and space.

Teachers in this study felt that the training they have received is not adequate, and they are interested in having further training on learners with ASD. It would be helpful for teachers in understanding and managing behavioural challenges of learners with ASD. Teachers felt that on-going training would be most suitable for all teachers of learners with ASD as it would expose them to the recent available interventions. It would keep teachers up to date with information about learners with ASD. This is supported by Lauderdale-Littin and Brennan (2018), who believe that teachers should get intense training specifically for learners with ASD as early as possible in their professional journey. This could be achieved integrating the course work and the practical training of working with learners with ASD. This training would prepare them to teach learners with ASD and understand their needs.

Teachers' attendance at a few days' workshop makes the crucial last part very difficult for them, which is \ implementing the strategies they have been trained in. Lauderdale-Littin and Brennan (2018) also believe that the one-day workshop is not very effective for teachers when they have to implement these interventions. The teachers felt that the

facilitators of the workshops just assume that every school has the same equipment for learners with ASD – but not every school can afford the specialised equipment, and the information ends up not being useful. Failure to implement strategies makes teachers feel incompetent. This programme training for teachers should equip them with the ability to develop individual education plans suitable for each individual's needs, provide support for behavioural challenges, and be able to work with a multidisciplinary team (Lauderdale-Littin & Brennan, 2018). On-going training should provide teachers with feedback on implementing strategies, and they would know what to do to improve their teaching. Lauderdale-Littin and Brennan (2018) mentioned that one of the obstacles in the public schools to ensuring teachers continuous development is the lack of funds.

'The teachers believed the multidisciplinary team to be effective in the education of learners with ASD. It includes professionals from various fields, and each of them provides their expertise to the benefit of each learner. The speech therapist, educational psychologist, occupational therapist, physiotherapist, medical practitioner, teacher and parent and many more make up the multidisciplinary team for learners with ASD (Strunk et al., 2017). According to Shamsad (2019), different specialists may help learners with ASD in different areas. The speech therapist may assist with the speech and communication difficulties, the physical therapist with the motor and muscle functioning skills, the occupational therapist with using the body parts sufficiently, and the sensory trainer helps learners with the response to sensory input.

A multidisciplinary team provides better outcomes by working towards the same goal (Strunk et al., 2017). It is stronger than individual teachers in having flexible members, good working relationships and teamwork. Teachers felt that it is a disadvantage for a learner not to have a full multidisciplinary team. Silva and Teixeira (2019) believe a multidisciplinary team can assist in implementing evolving technologies as they will be able to incorporate their expertise from different fields. Strunk et al. (2017) acknowledge that professionals are trained in their higher education institutes to work in a multidisciplinary team, but in the working environment there is lack of training in this.

The teachers felt unfit to be doing things in a field that they were not trained in. A teacher looks at the problem from only one angle, and needs other angles from different professionals. Without a multidisciplinary team a learner is not given the full support he/she deserves, and it just makes the work of a teacher harder. Raudeliunaite and Steponeniene (2020) found that teachers can provide support for each other by sharing their experiences and finding solutions together to the problem faced. Parents should

be seen as competent members of the multidisciplinary team as they may have effective strategies that work in the home environment that teachers can try to implement in the educational setting (Meng, 2017). The teachers believed that the lives of learners with ASD would be better if they had a full multidisciplinary team.

A multidisciplinary team works together to develop an individual educational plan (IEP) which is based on the strengths of an individual. The IEP includes instructions that meet the learners' needs. Teachers evaluate the effectiveness of the IEP, and changes are made if necessary. An IEP is implemented within the curriculum with the teaching method that is best suited to an individual. It provides support for learners with ASD, and makes learning as effective as possible. Teachers and/or parents of learners with ASD can give a brief description of learners' characteristics, including their strengths and weaknesses, and the multidisciplinary team may contribute based on that knowledge (Silva & Teixeira, 2019). Each professional needs to understand their role and scope of practice as they assess the child's issue to improve the academic, emotional, behavioural and mental health of learners with ASD (Strunk et al., 2017). Teachers felt untrained to develop the IEP alone as they focus only on the areas they were trained in.

The teacher-parent relationship is essential for the education of learners with ASD. Teachers and parents work together to provide learners with the support they need from both sides. This is consistent with the study by Raudeliunaite and Steponeniene (2020), who believe that communication between parents and teachers provides the parents with the opportunity to continue with educational support at home. Parents' involvement provides learners with ASD a feeling of security as they get support from both sides. Some of the teachers in this study blamed the parents for not taking an active role in their child's education, while others felt that parents feel helpless, and do not understand their children's condition. Learners with poor family involvement seem to have more developmental challenges. Garbacz, McIntyre and Santiago (2016) recommended that teachers take the first step in having an open and trusting relationship with the parents.

A parent-teacher relationship proves to be beneficial for both sides as parents can assist teachers with the effective strategies used at home to manage their children's behavioural challenges. The teachers can inform parents of the effective teaching strategies that they can use at home. Parents and teachers can both prepare learners with ASD for a change that is about to occur to avoid their distress. Garbacz et al. (2016) believe that the parent-teacher relationship is based on several things such as satisfaction with the school service, the learner's characteristics, the support he/she is

receiving, and the parents' level of education. It is important for the parent to identify the strengths and weaknesses of a learner with ASD before he/she begins school, and get different perspectives from different fields (Marsh et al., 2017)

### **5.3 SOCIOCULTURAL THEORY**

The results of this study are in line with the sociocultural theory that holds that development occurs through the social interaction of the learner within the societal context (Daneshfar, & Moharami, 2018). The interaction that brings about development occurs between the learners and their teachers and peers (Novita, Kurnia, & Mustofa, 2020). Teachers make learners engage with problems that are related to their cultural environment to make them feel more related and actively participating in class (Panhwar et al., 2016).

The teachers applied methods that bring about what is known as the zone of proximal development (ZPD). In sociocultural theory the ZPD is seen as the distance between what a learner could achieve independently in solving a problem and what he/she could achieve with help from someone with more knowledge (Brojerdi, 2017). Daneshfar and Moharami (2018) mentioned that the ZPD occurs in two stages: first, the interaction with people, which leads to the second stage which is the learner's internalisation and processing of the information learnt. Panhwar et al. (2016) explained that the ZPD equips the learner with strategies for solving future problems. It helps teachers to be able to determine the capabilities of learners so that suitable assistance may be given to them for cognitive development (Daneshfar, & Moharami, 2018).

Vygotsky emphasised the importance for the community of special education to try to provide support for learners with special needs in order to develop their social and cultural elements (Kim, 2017). He felt that the way to educate a learner with special needs is to focus less on the impairment he/she has, and more on the strategies that will be effective in educating him/her (Taber, 2020).

Vygotsky believed that if a child has a disability it does not mean that he/she is less developed than the other children in their age group. Rather it simply means that he/she will develop differently from other children without a disability (Stetsenko, & Selau, 2018). If the ordinary mediation or tools used do not work, then the teachers implement alternative ways to support a learner's development (Taber, 2020). Vygotsky stressed the importance of changing one's mind set to understand that learners not only have weaknesses but also strengths which play an enormous role (Stetsenko, & Selau, 2018).

Special needs learners use different strategies to communicate and interact with others, which may be seen as unusual. Teachers focus on the learners' strengths to try to compensate for the weaknesses a child may have (Kim, 2017). They help learners with the problem-solving skills they use both in class and in the outside world (Demirbaga, 2018). A step-by-step approach is used by teachers to explain the instructions for the learners with ASD to be able to do the tasks even when the support is removed (Lange, Costley, & Han, 2016). This process helps to turn the learners into independent workers.

Teachers as direction-givers help learners to access the world (Demirbaga, 2018) by providing feedback that is significant for their growth (McKee, & Kang, 2020). Teachers act as guides while learners take charge of their learning process. Sociocultural theory believes that learners are able to grasp more knowledge if they are actively involved rather than just receiving information from the teachers (Panhwar et al., 2016). The teachers' support is slowly decreased as the learners master the task and internalise the strategies used. This is known as scaffolding (Taber, 2020).

This theory emphasizes that every learner engages with other learners' ideas whilst sharing information they have. According to Kabuto, (2020) sociocultural perspective also assists with a better understanding of the learning disabilities. This promotes self-worth in learner as they feel that their opinion is taken into consideration and therefore matters. Learners are able to engage with each other through discussions and asking of questions for a better development (Mercer, Hennessy, & Warwick, 2019)

Sociocultural theory helps with a better understanding of communication via spoken language in a classroom. Since learners engage in spoken language that they all understand, this gives them an opportunity to work together without assistance of the teacher (Mercer et al., 2019). The sociocultural perspective reveals that the education system and cultural & social contexts do influence one another.

#### **5.4. PRACTICAL AND POLICY IMPLICATION OF THE RESEARCH FINDINGS**

For a better learning experience, learners need to be involved in making the lesson meaningful and relevant and this could be achieved through collaboration among learners. This theory elaborates on what learners can achieve and methods that can be used to promote the full potential using cultural, social and historical elements (Pathan, Memon, Memon, Khoso, & Bux, 2018). Biviano, (2019) stated that Sociocultural theory is against ignoring or not considering the influence of connections and feelings of the

communications. Teachers are left with the task of assisting the learners with a better understanding of the world and themselves. For development learners can be taught to use spoken words as a cultural and psychological tool. The focus is on what the learners felt and thought during the process of learning; provide a platform to relate to their personal experience (Biviano, 2019).

This research has a benefit that focuses on academically development strategies. Digital technology along with dialogic approach can provide support for learning and interaction among learners. This encourages the department to focus on communication pathways that is able to render development in the teaching and learning process (Englund, Olofsson, & Price, 2018). Sociocultural brings collaborations of the cultures to allow critical thinking caused by personal involvement of learners in the learning process (Hoff, 2019). The strategy to be developed needs to allow a teacher for active dialogic approach. Hwa, (2019) mentioned that there should be a link between the accountability of the instruments and the learners' performance. This allows the policy makers to evaluate if the contextual assumptions at each stage if it shows true reflection of the actual implementation context.

### **5.5. Recommendations for future research**

It is recommended that future research focuses on investigating the necessary amount and precise training for teachers of ASD to be regarded as competent.

Future research should investigate the level of knowledge that black parents actually have about the condition of their children, and whether their level of education influences their understanding of their children's condition.

Future studies could focus on the strategies used to teach ASD learners in well-developed schools or private schools, where all the necessary equipment and material are available.

### **5.6. Limitations of the study**

A limitation of this study is that the researcher did not discover the experience of learners with ASD as to which strategies seem to be more effective in keeping them actively engaged.

The study used the qualitative research method to get in-depth understanding of teachers' experiences, which means that generalisations cannot be made to different contexts.

The study consisted of only female educators, so the results could be gender biased. The small sample size also restricted the interpretation of this study to a limited context.

## **5.7 CONCLUSION**

The purpose of the study was to investigate the strategies used by teachers to enhance the participation in learning of learners with ASD in a resource centre. The participants included seven female teachers who shared their experience of working with learners with ASD. The first step was to understand what limits the class participation of learners with ASD, and it was revealed that these learners' characteristics do have an impact on their class participation. They understand the world differently, but their teachers have developed strategies to accommodate them in ways that make learning possible for every learner with their uniqueness. All the strategies implemented are based on the learners' capabilities and potential. There are support mechanisms that the teachers believed could be of assistance for learners with ASD, but unfortunately this particular resource centre could not afford the equipment that is essential to provide them with extra assistance.

Poor participation may lead to poor academic performance in learners with ASD (Sparapani et al., 2016). These learners \ have socio-emotional difficulties, and require support by being taught certain skills, based on their individual characteristics, that can be easy implemented. The support should allow learners to be able to apply their skills in different situations (Parent, Birtwell, Lambright, & DuBard, 2016). Owing to insufficient funding, a barrier is created in providing accommodation and assistance suitable for learners with ASD (Saggers et al., 2018). Learners' poor management of their own behaviour may cause anxiety and result in poor academic performance (Macdonald et al., 2018). Teachers of learners with special needs should focus not only on the deficits caused by the disorder, but rather on individual strengths, and use

them to develop the capabilities of learners with ASD. The strategies should be designed to accommodate and suit their abilities and potential.

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## APPENDIX 1

### INTERVIEW SHEET/SCHEDULE

**Project Title:** Enhancing Learning Participation for Learners with Autism Spectrum Disorder in a Resource Centre in the Pinetown District

**Purpose of the research:** To explore the pedagogical practices that teachers use to enhance learning participation in learners with Autism Spectrum Disorder.

**What you will do in this research:** If you decide to volunteer, you will be asked to participate in one interview. You will be asked several questions. Some of them will be about teaching learners with Autism Spectrum Disorder. Others will be practices used to enhance learning participation in learners with Autism Spectrum Disorder. With your permission, I will tape record the interviews so I don't have to make so many notes. You will not be asked to state your name on the recording.

**Time required:** The interview will take approximately 1 hour.

**Risks:** Medium risks are anticipated.

**Benefits:** This is a chance for you to tell your story about your experiences concerning the teaching practices you use to enhance learning participation of learners with Autism Spectrum Disorder.

**Compensation:** You will receive no payment for participating.

**Confidentiality:** Your responses to interview questions will be kept confidential. At no place will your actual identity be revealed. You will be assigned a random numerical code. Anyone who helps me transcribe responses will only know you by this code. The recording will be destroyed as soon as when my mini-dissertation has been accepted. The transcript, without your name, will be kept until the research is complete.

The key code linking your name with your number will be kept in a locked file cabinet in a locked office, and no one else will have access to it. It will be destroyed when my dissertation has been accepted. The data you give me will be used for completing my mini-dissertation I am currently writing and may be used as the basis for articles or presentations in the future. I won't use your name or information that would identify you in any publications or presentations.

**Participation and withdrawal:** Your participation in this study is completely voluntary, and you may refuse to participate or withdraw from the study without penalty or loss of benefits to which you may otherwise be entitled. You may withdraw by informing the experimenter that you no longer wish to participate (no questions will be asked). You may skip any question during the interview, but continue to participate in the rest of the study.

**To Contact the Researcher:** If you have questions or concerns about this research, please contact: [Zinzile Precious Ngcobo University of Zululand, Private Bag X1001, KwaDlangezwa,3886 / 074 927 9962 / zinzileprecious@gmail.com]. You may also contact the faculty member supervising this work: [Prof D.R Nzima, NzimaD@unizulu.ac.za].

Whom to contact about your rights in this research, for questions, concerns, suggestions, or complaints that are not being addressed by the researcher, or research-related harm: University of Zululand Research Ethics Committee [UZREC], Research & Innovation Office: 035 902 6887 or the researchers Department/supervisor.

## **SEMI-STRUCTURED INTERVIEW SCHEDULE**

The purpose of this interview is to gather information on your understanding and experiences in teaching reading comprehension to learners experiencing comprehension difficulties. The researcher will ensure anonymity. Participation is voluntary and you can withdraw at any time from participation.

### **Biographical Information**

**Age:** .....

**Gender:** .....

**No. of years teaching:** .....

**Teaching qualification:** .....

- 1. Do you teach learners with ASD?**
- 2. What are the approaches you use to teach learners with autism?**
- 3. Did you receive formal professional training to teach learners with ASD?**
- 4. What is learning participation in your understanding and how do you measure it?**

5. Do you think autism have influence in learning participation in learners diagnosed with this disorder.
  - 5.1 Which characteristics of ASD do you think has an effect in learning participation?
6. What are the practices you use to enhance learning participation in learners with ASD?
7. Which practices seems to be effective in enhancing learning participation in learners with ASD?
8. What are the support mechanism have you used to support learners with ASD?

## APPENDIX 2

### INTERVIEW SCHEDULE- IsiZulu Version

#### ISHEDULA LE YE INTERVIEW

**Isihloko somsebenzi:** Ukubheka izindlela zokufundisa abafundi abane Autism Spectrum Disorder ngaphakathi eResource Center engaphansi komkhandlu wase Pinetown.

**Inhloso yocwaningo:** Ukubhekisisa izindlela zabafundisayo ukuthi bayayilandeleda kanjani indlela yokufundisa umfundi ophila ne Autism Spectrum Disorder.

**Yikuphi ozokwenza kulolu cwaningo?:** Uma uzozingenela ngokuthanda, uzocelwa ukuthi uthathe inhlokokhono (interview). Uzobuzwa imibuzo emibalwa. Eminye yemibuzo izoba ngokufundisa umfundi ophila ne Autism Spectrum Disorder. Kanti eminye izoba mayela nokufundisa nokubheka inqubekela phambili nokuzikhandla kumfundi ophila ne Autism Spectrum Disorder eclasini. Ngemvume yakho, ngizoqopha inhlokokhono yethu ngesqophi mazwi ukuze ngingeke ngibhale okungesikho phansi. Angeke sikucele ukuba uzisho igama uma sesiqopha.

**Isikhathi esibekiwe:** Inhlokokhono izothatha cishe ihola elilodwa.

**Ubucayi:** Kulindeleke ukuba ingabi bucayi kakhulu.

**Ukuhlomula:** Kuyithuba lokuthu nawe uxoxe ngodaba lwakho osuke wahlangabezana nalo endimeni yokufundisa nenqubekela phambili kumfundi ophila ne Autism Spectrum Disorder.

**Isinxephezelo:** ngeke Uthole isinxephezelo ngokuba yingxenye yaloluhlelo.

**Ukuthembeka:** Izimpendulo zakho kwimibuzo yenhlokhono ihlala iyimfihlo. Nanini noma ikuphi angeke kuvele ukuthu ungubani. Ubuwena bufihleke kakhulu ngoba uzobe unenombolo yakho obizwa ngayo. Nanoma ngubani oyobe engilekelela ukuthatha izimpendulo, naye uyobe ekwazi ngenombolo yakho. Ingxoxo yethu kwisqopha mazwi iyalahlwa emumva kokuba okunye besikuxoxa sekwamkelekile. Isiqeshana sombhalo esingenalo igama lakho sizogcinwa kuze kuphele uphenyo.

Inombolo onikezwe yona okungiyi ephethe imniningwane yakho, izogcinwa endaweni ephephile emahhovisi, futhi akekho onelungelo lokuya kuwo. Izoba seyilahlwa emuva kokuba kwamkelekile ebesikwenza.

**Ukuba yingxenye nokuhoxa:** Ukuba yingxenye yayoluhlelo kusekuthandeni kwakho awuphoqiwe, futhi unelungelo lokunqaba okanye uhoxe ngaphandle kokuhlululwa nokulahlekelwa okuthile ongabe uzibophezele kukho. Ungakwazi ukuhoxa ngokuthi utshale losuke ubhekene naye ukuthi awusathandi ukuqhubeka (ayikho imibuzo ebuzwayo). Ungakwazi ukweqa eminye imibuzo ungayiphenduli kuyo inhlokhono, kodwa uqhubeka ube ngomunye wababa yingxenye yaloluhlelo.

**Ukuxhumana nowohlelo:** Uma kungabe unembuzo noma okuthile okukuhluphayo ngaloluhlelo, ungaxhumana no: [Zinzile Precious Ngcobo University of Zululand, Private Bag X1001, KwaDlangezwa, 3886 / 074 927 9962 / [zinzileprecious@gmail.com](mailto:zinzileprecious@gmail.com)]. Ungaphinde uxhumane nobukelele ukusebenza kwalendima: [Prof D.R Nzima, [nzimaD@unizulu.ac.za](mailto:nzimaD@unizulu.ac.za)].

Ongabathinta uma ufuna ukwazi ngamalungelo akho noma unomubono ungathinta University of Zululand Research Ethics Committee [UZREC], Research & Innovation Office: 035 902 6887 or the researchers Department/supervisor.

## **ISHEDULI SE NHLOLOKHONO.**

Isizathu salenhlokhono ukuthola ulwazi ngokuqondasisa kwakho izindlela osudlule kuzo ukufundisa izingane ezithola ubunzima eskoleni. Ubuwena ngeke buwaziwe Ungahamba noma inini uma usufuna.

## **IMININGWANE YAKHO**

Iminyaka.....

Ubulili.....

Iminyaka ufundisa.....

Izigqu zakho zobuthishela.....

- 1. Ungabe uyazifundisa izingane ezine ASD?**
- 2. Iziphi izindlela ozisebenzisayo uma ufundisa izingane ezine ASD?**
- 3. Ungabe wakuyela esikoleni ukoqheqheshwa ngokufundisa izingane ezine ASD?**
- 4. Ngabe yini ukufunda ngokuzikhandla eclasini ngokuqondisisa kwakho?**
- 5. Ungabe uyazi ukuba yini engaphazamisa ukufunda ngokuzikhandla kubafundi abane ASD?**
  - 5.1. Ikuphi okuyinxenye ye ASD ocabanga ukuthi kungaphazamisa ukufunda ngokuzikhandle kwezingane ezine ASD?**
- 6. Iziphi izindlela osuke wazisebenzisa ukunyusa ukusebenza ngokuzikhandla kwabafundi abane ASD e-clasini?**
- 7. Iziphi izindlela obona engathi ziyasebenza ekunyuseni ukuzikhandla kwezingane ezine ASD eclasini?**
- 8. Iziphi izinto enizisebenzisayo ukuxhasa ukufunda kwezingane ezine ASD?**

## APPENDIX 3

### INFORMED CONSENT DECLARATION

(Participant)

Project Title: **ENHANCING LEARNING PARTICIPATION FOR LEARNERS WITH AUTISM SPECTRUM DISORDER IN A RESOURCE CENTRE IN THE PINETOWN DISTRICT**

Zinzile Precious Ngcobo from department of educational psychology and special education at University of Zululand has requested my permission to participate in the above-mentioned research project.

The nature and the purpose of the research project and of this informed consent declaration have been explained to me in a language that I understand.

I am aware that:

1. The purpose of the research project is to investigate educational practices that enhance learning participation in learners with Autism Spectrum Disorder.
2. The University of Zululand has given ethical clearance to this research project and I have seen the clearance certificate.
3. By participating in this research project I will be contributing towards investigation of different ways of enhancing learning participation of learners with ASD
4. I will participate in the project by participating in the interview.
5. My participation is entirely voluntary and should I at any stage wish to withdraw from participating further, I may do so without any negative consequences.
6. I will not be compensated for participating in the research,
7. The researcher intends publishing the research results in the form of article. However, confidentiality and anonymity of records will be maintained and that my

name and identity will not be revealed to anyone who has not been involved in the conduct of the research

8. Any further questions that I might have concerning the research or my participation will be answered by Zinzile Precious Ngcobo (0749279962)
9. By signing this informed consent declaration I am not waiving any legal claims, rights or remedies.
10. A copy of this informed consent declaration will be given to me, and the original will be kept on record.

I, ..... have read the above information / confirm that the above information has been explained to me in a language that I understand and I am aware of this document's contents. I have asked all questions that I wished to ask and these have been answered to my satisfaction. I fully understand what is expected of me during the research.

I have not been pressurised in any way and I voluntarily agree to participate in the above-mentioned project.

.....

**Participant's signature**

.....

**Date**

## APPENDIX 4

### INFORMED CONSENT DECLARATION

(Parent or guardian)

**Project Title: ENHANCING LEARNING PARTICIPATION FOR LEARNERS WITH AUTISM SPECTRUM DISORDER IN A RESOURCE CENTRE IN THE PINETOWN DISTRICT**

Zinzile Precious Ngcobo from department of educational psychology and special education at University of Zululand has requested my permission to participate in the above-mentioned research project.

The nature and the purpose of the research project and of this informed consent declaration have been explained to me in a language that I understand.

I am aware that:

1. The purpose of the research project is to investigate educational practices that enhance learning participation in learners with Autism Spectrum Disorder.
2. The University of Zululand has given ethical clearance to this research project and I have seen the clearance certificate.
3. By participating in this research project my child/ward will be contributing towards investigation of different ways of enhancing learning participation of learners with ASD
4. My child/ward will participate in the project by being involved in observation. My child only has to be present in the classroom during observation.
5. My child's participation is entirely voluntary and should at any stage wish to withdraw from participating further, he/she may do so without any negative consequences.
6. My child will not be compensated for participating in the research,

7. The researcher intends publishing the research results in the form of article. However, confidentiality and anonymity of records will be maintained and that my child's name and identity will not be revealed to anyone who has not been involved in the conduct of the research
8. Any further questions that I might have concerning the research or my child's participation will be answered by Zinzile Precious Ngcobo (0749279962)
9. By signing this informed consent declaration I am not waiving any legal claims, rights or remedies.
10. A copy of this informed consent declaration will be given to me, and the original will be kept on record.
11. There may be risks associated with my child's/ward's participation in the project. I am aware that
  - a) The present of the researcher may make my child feel discomfort
  - b) The researcher will work with a qualified psychologist to provide some counselling should my child experience discomfort.
12. I have stated things (if any) that the researcher should try to avoid that may trigger discomfort to my child.

I, ..... have read the above information / confirm that the above information has been explained to me in a language that I understand and I am aware of this document's contents. I have asked all questions that I wished to ask and these have been answered to my satisfaction. . I fully understand what is expected of my child/ward during the research.

I have not been pressurised in any way. I voluntarily agree that my child/ward ..... (.child's name and age), may participate in the above-mentioned research project.

.....  
Parent/guardian signature

.....  
Date

## APPENDIX 5



**UNIVERSITY OF ZULULAND RESEARCH  
ETHICS COMMITTEE**  
(Reg No: UZREC 171110-030)



### ETHICAL CLEARANCE CERTIFICATE - RENEWAL

Certificate Number	UZREC 171110-030 PGM 2018/16		
Project Title	Enhancing learning participation for learners with Autism Spectrum Disorder in a Resource Centre in the Pietermaritzburg District		
Principal Researcher/ Investigator	J.P Ngcobo		
Supervisor and Co-supervisor	Prof DR Nazim	Mr. DV Gumede	
Department	Educational Psychology		
Faculty	Education		
Type of Risk	Medium Risk – Data collection from people		
Nature of Project	Honours/4 <sup>th</sup> Year	Master's	Doctoral
		X	Departmental

The University of Zululand's Research Ethics Committee (UZREC) hereby gives ethical renewal approval in its post of the undertakings contained in the above-mentioned project. This approval is extended for another 1 year. The Researcher may therefore continue with data collection as from the date of this Certificate, using the certificate number provided above.

- SPECIAL CONDITIONS:**
- (1) This certificate is valid for 1 year from the date of issue.
  - (2) Principal researcher must provide an annual report to the UZREC in the prescribed format (due date- 12 December 2023)
  - (3) The UZREC must be informed immediately of any material change in the conditions or undertakings mentioned in the documents that were presented to the meeting.
  - (4) Under the Protection of Personal Information Act, 64 of 2013 ("POPIA"), researchers have a general legal duty to protect information they process. They must ensure the security and protection of any personal information processed through the research and provide a compliant and consistent approach to data protection. The information collected via interviews must be for research purposes only. No personal information such as opinions, views and academic background may be linked to the respondents' identity or shared with anyone for marketing purposes or otherwise.

The UZREC wishes the researcher well in conducting research.

Prof. Mokuuthula Kunene  
Chairperson: University Research Ethics Committee  
Deputy Vice-Chancellor: Research & Innovation  
12 December 2022

<b>CHAIRPERSON</b> <b>UNIVERSITY OF ZULULAND RESEARCH</b> <b>ETHICS COMMITTEE (UZREC)</b> <b>REG NO. UZREC 171110-030</b>
<b>2022-12-12</b>
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## APPENDIX 7

### CERTIFICATE

This is to certify that I have been responsible for the language editing of Ms Zinzile Precious Ngcobo's master's dissertation for the Department of Educational Psychology and Special Education at the University of Zululand, entitled *Enhancing Learning Participation for Learners with Autism Spectrum Disorder in a Resource Centre in the Pinetown District*.

*A. N. Bell*

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## APPENDIX 8

### ENHANCING LEARNING PARTICIPATION FOR LEARNERS WITH AUTISM SPECTRUM DISORDER IN A RESOURCE CENTRE IN THE PINETOWN DISTRICT

#### ORIGINALITY REPORT

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