Autism in Inclusive Education: The Employment of TEACCH in a Secondary School in Auckland, New Zealand: A Case Study

by

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DECLARATION

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I declare that **Autism in Inclusive Education: The Employment of TEACCH in a Secondary School in Auckland, New Zealand: A Case Study** is my own work and that all the sources used have been acknowledged. The sources used have been acknowledged by means of complete references while the Bibliography is used on page 118.

21 February 2014

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Signature   Date

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ABSTRACT

Many educators are experiencing challenges in educating autistic learners, with the media reporting incidents of autistic learners being denied access to their local schools. This case study investigated how effective the TEACCH (Treatment and Education of Autistic and Communication Handicapped Children) model is, in helping autistic learners to learn in an inclusive environment. The data collection instrumentsused included a literature review, questionnaires, interviews and artefacts. The collected data were analysed statistically, and descriptively. It seems as if there is perception that autism is increasing. Teachers need to be taught about full support mechanisms to deal with the challenges of teaching autistic learners. The research revealed that teachers were struggling to implement the TEACCH program owing to a lack of support programs for teachers, as well as a lack of continued use by other teachers. It was revealed that the teachers felt that for intervention programs to be successful, autistic learners should learn separately.

KEY TERMS

Autism, Inclusion, Treatment and Education of Autistic and Communication Handicapped Children TEACCH, Social interaction, Communication, Intervention programs, Structured teaching, Attitudes, Individual Education Plan, Visuals, Adolescents

LIST OF ABBREVIATIONS

ADHD Attention Deficit-Hyperactivity Disorder

APA American Psychological Association

ASD Autism Spectrum Disorders

IDEA Individuals with Disabilities Education Act

IEP Individual Education Plan

NCLB No Child Left Behind

NZMOE New Zealand Ministry of Education

ORS On-going Resourcing Scheme

PECS Picture Exchange Communication System

RTLB Resource Teacher: Learning and Behaviour

STOS Specialist Teacher Outreach Services

TEACCH Treatment and Education of Autistic and Communication Handicapped Children

SEG Special Education Grant

SES Specialist Education Services

SPELL Structure, Positive, Empathy, Low arousal, and Links

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CHAPTER 1
INTRODUCTORY ORIENTATION AND STATEMENT OF THE PROBLEM

1.1   INTRODUCTION

The media (American Broadcast Corporation 2012; Canadian Television 2013; Huffington Post (UK) 2012; New Zealand Herald 2010; The Sunday Telegraph (Australia) 2011) publish many reports about the rise in the number of children being diagnosed with autism. Judging by the media coverage of autism it seems as if autism is one of the fastest growing of all childhood disorders or diseases; in fact, it seems to be at epidemic proportions. However, while the prevalence of autism is rising, much remains to be discovered when it comes to helping these learners (The New Zealand Ministry of Education [NZMOE] 2008:30). In New Zealand, one in every hundred learners is diagnosed with autism (NZMOE 2008:30). In the USA, there has also recently been a consistent increase in the reported number of learners with autism. Murray (2013:1) and Wall (2010:7) attribute much of this recent increase to diagnoses of children with previously unrecognized autism spectrum disorders (ASD). The official USA government report estimated that one in 88 children has been diagnosed with an ASD (Centres for Diseases Control and Preventions (CDC) 2012:1). Additional data suggest that the true incidence of autism is indeed closer to one in 50 (Murray 2013:1). The official estimation is based on school and medical records. Therefore, there is a possibility that children not enrolled in assistance programs are not included in this figure. The autism ratio of four boys to one girl cases (Scheuermann & Webber 2002:4; Wall 2010:8) has not changed.

Successful identification of autism in young children and the effectiveness of intervention programs depend on care providers' ability to monitor children's development, and initiate referrals in a timely manner. The NZMOE (2008:37) advises that facilitation of early identification of autistic children requires adherence   to procedures employed by health practitioners. These are:

- Proactive monitoring or surveillance for developmental milestones during all regular visits to health care professionals;
- Eliciting parental and/or day-care providers and early childhood teachers' concerns at each meeting with a health care professional.

All professionals who come into contact with children, whether in health care services, early childhood education centres or primary schools, should receive training in alerting signals of possible ASD (NZMOE 2008: 37 & 190). Early identification of autism is crucial when it comes to intervention, because it can build the foundation upon which autistic learners can be supported more effectively in secondary schools.

Educational inclusion is advancing rapidly but, policy makers, parents, and teachers must still deal with systems that are not ready to meet the multiple responsibilities of inclusively educating autistic learners (Winzer 2006 in Zajda 2011:291). Although an inclusive classroom is supposed to increase opportunities for learning, simply placing learners in such a class will not necessarily increase their chances of learning (MacArthur, Kelly & Higgins 2005:53; Wall 2010:137).

If autistic learners are to be successfully included in the regular school, the level of teacher training must be significantly correlated with the level of confidence in which teachers can use techniques to include all learners in the process of learning together (Zajda 2011:290). Hence, this study tries to find out how an inclusive Auckland secondary school with students who used to receive outreach services is ensuring that autistic learners' opportunities for learning are increased by the employment of TEACCH. The phase selected by the researcher is the middle adolescent stage (age 15-16 years).

1.2   MOTIVATION

Autistic learners are experiencing different forms of exclusion from and within schools. The problem might arise from the fact that autism is not well known to most people. To complicate matters even more, autism affects people in different ways (López 2012:5; Magyar 2011:5; National Research Council 2001:2; Wall 2010:4). Understanding learners with autism in the classroom, is much more complicated than merely having a certain amount of knowledge about this impairment. There is less tolerance in schools and society in general for disabilities that are more difficult to diagnose (Kaweski 2011:5) than for, for instance, physical impairments, which are easier to diagnose. Autistic learners present unique educational programming challenges to schools because of the neuro-developmental, social and behavioural difficulties associated with teaching these learners.

The lack of appropriate techniques used by most teachers in the education of learners with autistic spectrum disorder (ASD) is a stumbling block. To understand the full extent of this problem, one has only to look at some news headlines about autism. Many newspapers and television stations from all over the world have reported how education systems are letting down autistic learners (Australian Channel 7 2012; Lepkowska 2008; The Guardian2008; BBC News2012 ; New Zealand Herald2012;New Zealand TV32012; Stuff 2010; Voxy 2010;Simjee 2010; Macneil 2011).

As the above-mentioned media show, the dilemma of the education system failing autistic learners is not unique to New Zealand. The on-going battle that parents face in getting appropriate help shows that education systems worldwide are failing many learners. Although abundant research has been done on autism, no research has been done concerning issues directly related to the effectiveness of schools or educational programming in providing education for learners with autism (Ozonoff & Cathcart 1998 in

Buckley 2007:1; *et al.* Callahan, Shukla-Mehta, Magee, & Wie 2010:74; Sandford 2009:2). Some of those studies have inquired into the medical history, developmental symptoms or characteristics of children with autism spectrum disorders. Others have included, among others, topics such as the attitudes of professionals, their effect on the services available, calibre of special education teachers (Wall 2010:41). This has left autism interventions in public schools not being fully investigated.

Few programs for educating ASD learners are widely known or available. Most of the available research regarding the education of ASD learners focuses on the needs of preschool learners (Corsello 2005:74) with little ASD intervention literature conducted mainly for adolescents (de Bruin, Deppeler, Moore & Diamond 2013:2). In a study, Volkmar (2010) in Carter, Common, Sreckovic, Huber, Bottema-Beutel, Gustafson, Dykstra & Hume (2013:2) reviewed 66 studies regarding social outcomes with learners with ASD and out of those, only five per cent focused on autistic adolescents. Furthermore Carter *et al.* (2010) cited by Carter*et al.* (2013:2) found five studies only that involved autistic learners at secondary schools. In my own research, I experienced that it was very difficult to find literature on intervention programs for learners in secondary schools. In fact, even the NZMOE (2008:125) mentioned that it is disappointing that strategies for supporting learners at secondary school level are often based on the research about younger learners. The inability of many schools to deliver high quality autism programming is an area of widespread concern (Callahan *et al.* 2010:74; Magyar 2011:19). Most secondary school teachers find the task of educating autistic learners daunting. Those secondary schools with a special educational needs coordinator (SENCO), resource teacher learning and behaviour (RTLB) or those who have students under specialist teacher outreach services (STOS) may not find inclusion of autistic learners such a burden if they have specialist support. Considering the high frequency of transition in a secondary school day, this researcher intends to investigate how successful teachers, who have been exposed to TEACCH, are using it to help ASD learners in an Auckland inclusive secondary school that has learners who used to receive outreach services.

1.3   BACKGROUND OF THE PROBLEM

Autistic learners see doctors only periodically, but they have to go to school every day. It is therefore the public school system that bears most of the responsibility of treating autistic children, because treatment means teaching (Macneil 2011 on line). For public school systems, the demand for special educational intervention resources for autistic children often outpaces what is available. Larkey (2003:1) describes the situation in the following way: "*If a student is visually impaired, we use braille and a range of special adaptations to enable them to be independent. In the same way we need to adapt the environment of students with Autism Spectrum Disorder to set them up for success*".

Although the government mandated the inclusion of learners who experience difficulties in the classroom, mainstream schools find it difficult to integrate pupils with autism (Magyar 2011:19).The feasibility of inclusion of autistic learners is very debatable. The perception of mainstream teachers in New Zealand is very negative in terms of the inclusion of autistic learners in schools. The results of a study done by Goodal (2013:4) in the South Island of New Zealand suggested that inclusive education for autistic learners is *" a policy doomed to fail"*. Yet the major principles of the No Child Left Behind (NCLB) Act of 2001 would have had the greatest effect on teachers, parents, and administrators, including ensuring accountability for results, using scientifically based instruction, as well as providing highly qualified teachers and para-professionals (Yell, Drasgow & Lowrey 2005:130 & 133).

Many traditional educational techniques, appropriate for other learners, are particularly ineffective for autistic learners. Inclusion of autistic learners is a challenge. Successful inclusion in a regular school will depend on the severity of the challenge experienced, the attitude and training of the teachers, peer models, the collaboration of the educating parties involved, as well as the use of other technology (Grossi-Kliss 2006: 5, 6 & 119; Myles, Simpson, Ormsbee, & Erickson 1993 in Mesibov & Shea 1996:342). Although the positive attitudes of teachers are important, more scientific research and reports of success will be necessary to convince schools to accept autistic learners into mainstream schools (Sandford 2009:XI).

1.4   PROBLEM STATEMENT

Although extensive literature has been published about the aetiology and nature of ASD in all its forms (Asperger, 1991; Atwood, 1998; Wing, 1991 in Buckley 2007:4), the New Zealand educational system is still faced with the dilemma of teaching autistic learners in an inclusive environment. Literature has consistently shown that teachers in public schools are often ill prepared, both in knowledge, skills and attitude, to teach autistic learners (Koegel & Koegel 1995:160; Lynne 2003:360). This problem is mainly caused by the lack of knowledge and skills in using effective strategies that work for autistic learners in secondary schools. Without intervention, autistic learners are at risk of a variety of problems.

Autism manifests differently in different children (Heflin and Alaimo 2007:37), therefore no single intervention program has been found to meet the needs of all autistic learners. Various programs claim to play a major role in dealing with autism. However, there is, as yet, no evidence that any one of these programs is superior to the others (Howlin 2010:133). All the models have something to offer in different situations. The skill of the professional lies in knowing when to use which model to meet the needs of particular learners, situations and skills (NZMOE 2008:90; Wall 2004:83). Hence the main purpose of this study is to explore how secondary schools in Auckland, which have learners who are supported by the Specialist Teacher Outreach Services (STOS) [formerly Special Education Itinerant Teachers (SEIT)], are implementing Treatment and Education of Autistic and Communication Handicapped Children (TEACCH)

to help autistic learners to learn in an inclusive mainstream environment. It is against this background that the study seeks to achieve the following aim.

1.5   AIM OF THE STUDY

The aim of this research is to add to existing literature about the use and effectiveness of TEACCH in inclusive secondary schools. This will be achieved by determining how effectively the TEACCH model is used to educate middle adolescence autistic learners in an Auckland inclusive secondary school. The objectives are to:

- Determine by means of a literature review the best practices for teaching autistic learners in a mainstream environment;
- Determine the opinions of teachers who currently teach autistic learners in a mainstream secondary school in Auckland about the TEACCH model;
- Determine the opinions of parents regarding the effectiveness of the TEACCH model.

1.5.1   Main question

How effectively is the TEACCH model used to educate autistic learners in an Auckland inclusive secondary school?

1.5.2   Sub questions

- What are the best practices according to literature for teaching autistic learners in a mainstream environment?
- What are the teachers' opinions with regard to the effectiveness of the TEACCH model?
- What are the parents' opinions with regard to the effectiveness of the TEACCH model?

1.6   DEFINITION OF TERMS

Definitions of the following terms will be given:

- Inclusion, mainstreaming and regular school;
- New Zealand secondary school;
- Disability/impairment
- Autistic learners;

- Technical terms which include attention deficit-hyperactivity disorder (ADHD); Decile; Individual education plan (IEP); Ongoing Resourcing Scheme (ORS); Specialist Teacher Outreach Services (STOS); Treatment and Education of Autistic and Communication Handicapped Children (TEACCH).

1.6.1 Inclusion, mainstreaming and regular school

Inclusion is about recognising and respecting the differences among all learners and building on the similarities. Inclusion is about equality and supporting all learners, educators and the system as a whole so that the full range of learning needs can be met (Education White Paper 6 2001:17). Inclusive practice is concerned with the process of changing the educational environment to remove barriers to learning and increase participation of all learners (Fraser, Moltzen & Ryba 2005:95). Full inclusion is defined as spending at least 80% of the day in general education (IDEA 2004 in Smith 2012:25).

Mainstreaming means *"giving certain learners extra support so that they can 'fit in' or be integrated into the 'normal' classroom routine. Learners are assessed by specialists who diagnose and prescribe technical interventions, such as the placement of learners in programs"* (Education White Paper 6 2001:17). Mainstreaming and integration focus on changes that need to take place in learners so that they can 'fit in'. The focus is on the learner.

A regular school is any school that mainly meets the needs of pupils who do not experience barriers to learning. A regular school provides the cultures, curricula, and values of a community (Kochhar, West & Taymans 2000:8). Students who experience barriers to learning can participate fully in their local, regular school.

1.6.2 New Zealand secondary school

The New Zealand education system comprises 13 year levels. Secondary education covers Years (Grades) 9 to 13, when learners are generally aged 13 to 17 (NZMOE 2013:2). State secondary schools are usually known as secondary schools, high schools, or colleges. Although learners continue to experience a broad and balanced curriculum, specialization is possible, especially in Years 11-13. Learners may begin courses of a vocational nature while at school. Learners are provided with career counselling.

1.6.3   Disability

Disability is an umbrella term used which covers impairments, which can be physical, sensory, cognitive, mental, emotional, developmental or a combination of these (World Health Organisation [WHO] 2014).

Impairment: Refers to a problem in body structure or function which leads to activity limitations, and participation restrictions.

1.6.4   Autistic learners

Autistic learners can be described as having a hidden developmental disability. They display very challenging behaviour, which can include problems with communication, social interaction, communication, and restricted or stereotyped behaviour (Zager, Wehmeyer & Simpson 2012:6).

1.6.5   Technical terms

1.6.5.1   *Attention deficit-hyperactivity disorder (ADHD):*

This term refers to a neurological condition characterized by hyperactivity, inattention and impulsivity (Flick 2010:6). ADHD is known as a behavioural disorder. ADHD is a failure of the brain functions crucial for maintaining attention. Certain brain structures known to inhibit behaviour, sustain attention, and control mood, are smaller (Pierangelo & Giuliani 2008:2). The causes of ADHD are not known.

1.6.5.2   *Decile:*

Deciles are a way that the NZMOE allocates funding to schools. Schools range from Deciles 1-10. "*Decile 1 schools are the 10% of schools with the highest proportion of students from low socio-economic communities, whereas Decile 10 schools are the 10% of schools with the lowest proportion of these students. The lower the socio-economic status of most of the learners' parents the lower the school decile*" (Appendix F).

1.6.5.3 *Individual education plan (IEP)*:

It is a plan from which a program is developed. It tells what a learner needs to learn, who will teach it and what resources are needed (Special Education Services 1990:3.7 in Fraser *et al.* 2005:156). It arises out of specific concerns about a learner and represents an agreement between all those involved in the process of jointly deciding what needs are specific to the learner and how to meet these needs.

1.6.5.4   *Ongoing Resourcing Scheme (ORS):*

ORS provides funding for extra teaching, specialist programs, therapy, consumables and education support. To qualify, a student must have a high level of continuing support and intervention, requiring significant adaptations of curriculum content, assistance to participate in face-to-face communication, and supervision with daily care and mobility (Fraser *et al.* 2005:28). The Special Education Grant (SEG) is provided to assist boards to support learners with moderate barriers to learning, such as behavioural difficulties.

1.6.5.5   *Resource Teachers:*

Learning and Behaviour (RTLB) are outreach/itinerant teachers who work either within a cluster or across clusters of learners. RTLBs work with learners with high behaviour and learning needs because these learners miss out on ORS funding, or Severe Behaviour Initiative (SBI) which was designed to support students with high or very high behaviour needs (NZMOE 2002:24).

1.6.5.6   *Specialist Teacher Outreach Services (STOS)* (in some countries known as remedial teachers or itinerant teachers):

These are special education teachers based at special schools or other provider schools and go into mainstream schools helping with formulating IEPs, giving advice to teachers/teacher aides as well as direct contact with the students on ORS.

1.6.5.7   *Treatment and Education of Autistic and Communication Handicapped Children (TEACCH):*

An intervention program that advocates organising the learning environment and producing autism-friendly processes and styles (Koudstaal 2005:322). The strategies used should be adaptable to whatever style and degree of support is required.

1.7   RESEARCH DESIGN

This section summarises the research design. Details of the research design are contained in Chapter three. In this mixed method study, both qualitative and quantitative research designs were used. Although quantitative research has a great investment in reliability and validity (Burns 2000:336), qualitative research makes some issues clearer in a way that is not possible using the statistical methods of quantitative research (Gall, Gall & Borg 2007:484; McMillan & Schumacher 2010:321).

An instrumental case study was employed. McMillan and Schumacher (2010:344) define a case study as an intense analysis of a single entity, or a unit around which there are boundaries. Only by selecting case studies strategically, will certain case studies allow generalization (Denzin & Lincoln 2000:437). This researcher chose to use a case study, since it was a good source of ideas about behaviour and it provided a good opportunity for innovation. A case study makes it easy to uncover candid perceptions, attitudes and behaviour of participants (Bogdan & Biklen 2007:66). Readers of case reports have a better basis for designing educational interventions, or taking other actions than they would have from reading only quantitative research reports.

1.7.1   Literature study

The first section of the literature review (Chapter 2) covered the nature of autism. This included the defining of autism, age of onset and aetiology of autism, and identification and assessment of autistic learners.

The second section reviewed legislation and policies in the USA, New Zealand and South Africa. The third section reviewed programs regarding the teaching of autistic learners. These programs included TEACCH (Treatment and Education of Autistic and Related-Communication-Handicapped Children), SPELL (Structure, Positive, Empathy, Low arousal, and Links) as well as a list of therapeutic interventions. Principals' opinions, teachers' opinions, and parents' opinions on the implementation of TEACCH were reviewed.

Literature about autism in inclusive education, autistic learners and other learners as well as best practices was also reviewed. The literature review identified what is known about TEACCH, its strengths and its weaknesses. The importance of experience was central to this study. The literature that had the most relevance for this study was reviewed (McMillan & Schumacher 2010:73). This helped in the design of the entire research process.

1.7.2   Sampling

Purposeful sampling was used to choose the school. Purposeful sampling was done at an Auckland secondary school to obtain the richest information possible. In New Zealand, learners who are in an inclusive setting but who have been officially identified as experiencing barriers to learning are put under the Ongoing Resourcing Scheme (ORS). Some of them receive help from the STOS. Those learners who experience barriers to learning, but have not been identified officially, are placed under the Resource Teacher: Learning and Behaviour (RTLB) program (NZMOE 2002:24). The study was carried out in a school that had learners who were under itinerancy at some time.

The secondary school teachers referred the researcher to parents whose children are autistic whom they thought would be knowledgeable and cooperative. The outreach teachers and the school principal were obvious choices; the psychologist (based at same school with STOS) and all the teachers involved in the TEACCH project were asked to complete the questionnaires. Purposeful sampling is based on the assumption that the researcher wants to discover, understand, and gain insight, and therefore the researcher selected a sample from which the most could be learned (McMillan & Schumacher 2010:138; Merriam 1998:61). This made it possible to select cases that were rich in information to study in depth.

1.7.3   Data collection

Data was collected through questionnaires, interviews, and physical artefacts as suggested by Yin 2003 in Creswell (2007:75). After the principal and the school psychologist had been interviewed, their opinions were studied and interpreted to get to the essence of the advantages and disadvantages of TEACCH through individual interviews. Bogdan and Biklen (2007:3) maintain that an interview allows the participants to answer from their own experience rather than from one structured questionnaire. Interviews give the respondent more freedom of response making it easier to reveal certain feelings, attitudes and understanding of the subject, or information that they might not have revealed under any other circumstances.

Questionnaires were given to three autistic learners' parents, five outreach teachers, and to ten teachers in the Auckland secondary school who teach the autistic learners. The questionnaires were developed after literature studies on the best practices for the education of autistic learners. Statistical techniques were used to determine validity, reliability, and statistical significance.

In addition to all these data collection techniques, data were also collected from artefacts. The data collected from different sources, situations, and methods were compared to see whether the same pattern kept recurring. Bias that might have resulted from relying exclusively on any one data collection method, source, analysis, or theory, was eliminated as far as possible (Gall *et al.* 2007:474). Triangulation aided the validity of the findings.

1.7.4   Validity and trustworthiness

To ensure validity, the researcher employed a multi-method strategy for triangulation; used the language of the participants; made a literal recording of the interviews and write detailed descriptions of situations; recorded data mechanically; let a participant researcher corroborate what has been observed and

recorded; let participant researcher review persons interviewed and check and modify for accuracy, and checked data for contradictions (McMillan & Schumacher 2010:330).

With regard to ethical issues the researcher assured the participants of confidentiality and anonymity, as well of caring and fairness as part of my moral obligation. The researcher provided adequate information about the goal of the research. The researcher obtained permission to conduct the research from the relevant authorities and applied for ethical clearance from the University of South Africa.

1.7.5   Ethics

The researcher provided adequate information about the goal of the study, the procedures that would be followed during the investigation, *"the possible advantages, disadvantages and dangers to which respondents may be exposed"*, as well as assurance of my credibility (De Vos, Strydom, Fouché & Delport 2005:59). The researcher requested informed consent from the school authorities, as well as from all the participants in the research project and the UNISA Ethics Committee of the College of Education. The researcher indicated what the topic would be and that the research was intended for academic purposes only. As suggested by McMillan and Schumacher (2010:339), the researcher assured the committee that the researcher would maintain confidentiality and anonymity, as well as caring and fairness as part of my moral obligation and that the researcher would not deceive the participants. Participants were informed that should they feel that they had been betrayed they had the right to withdraw from the research.

Interested participants were welcome to view copies of the draft of the written report and the transcripts at any point during the duration of the project.

1.7.6   Data analysis and interpretation

The data collected through questionnaires was analysed statistically. An inductive analysis was done. The interviews were recorded verbatim and then transcribed by hand, since this was research on a small scale. The data were scanned for categories of phenomena and for relationships among the categories (LeCompte & Preissle 1993:254; McMillan & Schumacher 2010:367). The themes or concepts that emerged were used to analyse the data (Neuman 2000:420). This entailed moving from specific data to general categories and patterns. The raw data was reduced to a manageable size.

1.8   THE STRUCTURE OF THE STUDY

The research was reported in five chapters, as follows:

Chapter 1 served as an introduction. It provided a brief theoretical background, followed by a statement of the problem and an explanation of the aims and objectives of the research study. It concluded with definitions of key terminology that were used in this report.

In **Chapter 2** the researcher reviewed the literature concerning the use of TEACCH in teaching learners with autism in an inclusive setting in secondary schools. The situation regarding inclusion of autistic learners in New Zealand's unique context was discussed. New legislation, as well as its practical application with regard to autistic learners, was also reviewed.

The research design and the methods used to conduct this study were discussed in **Chapter 3.** Detailed descriptions of the research phases were provided. Procedures relating to the collection, recording and analysis of the data were discussed.

Chapter 4 included a synthesis of the literature research and the empirical study (Chapters 2 and 3). This enabled the researcher to determine whether the results of the literature study correspond with the empirical findings. Practical recommendations were formulated based on this.

An overview of the results obtained according to the aim and objectives formulated for the study was presented in **Chapter 5.** Recommendations to improve practice and for further study as well as limitations of the study were presented in this chapter.

1.9   SIGNIFICANCE OF STUDY

The study was carried out mainly to add to existing literature. Also to make New Zealand readers become aware of strategies and available help in educating autistic learners.

1.10   CONCLUSION

This chapter served as an introduction and provided the necessary information regarding the background to the study. It focused on how the media is drawing attention to the pervasiveness of autism, and how education systems are failing autistic learners. It also gave a background of the TEACCH program. It outlined the statement of the research problem, research design and methodology, as well as the research program, and provided a clarification of terms as they are applied in this research.

CHAPTER 2

LITERATURE REVIEW: AUTISM IN INCLUSIVE EDUCATION

2.1   INTRODUCTION

This second chapter includes a review of the literature on the nature of the autism, legislation, both at international and national level, and national policies. Programs regarding the teaching of autistic learners are also reviewed. Legislation and policies for inclusive practices exist in many countries but, the quality and appropriateness of provision should be considered carefully (Wall 2010:136). Provisions should be tailored to suit the needs of the individual autistic learner.

2.2   AUTISM

This section focuses on the nature of autism. The discussion is on the definition of autism, the age of onset of autism, the aetiology of autism, and the identification and assessment of autistic learners. Autism is described as a complex disability, and autistic learners' behaviour is challenging to their caregivers and teachers, because it interferes with teaching new skills and behaviours (Smith 2001 in Zager *et al.* 2012:183).

2.2.1   Definition of autism and autistic learners

Autism is a hidden disability and lifelong behaviourally defined condition that affects the way a person communicates and relates to people around them (Scheuermann & Webber 2002:5; Smith 2012:4; Wall 2010:4). It is an autism spectrum disorder (ASD). ASD is a group of separate syndromes with an overlapping triad of impairments. The three notable impairments which arise in every definition of autism are lack of social interaction, communication, and lack of imagination or severely restricted interests, resistance to environmental change or daily routines and highly repetitive behaviour (Koudstaal 2005:309; Magyar 2011:3; Smith 2012:4; Wall 2010:6).

Autistic learners have security in sameness and tend to want to maintain established behavioural patterns, and feel more comfortable in a set environment. They try to ward off any threat to their security (Kanner 1973:68). Autistic learners develop rituals in play, and may become obsessed with one particular topic (Scheuermann & Webber 2002:7; Willis 2006:30). Sensory processing issues seem to affect the majority of autistic learners. Some autistic learners have an extreme over- or under-sensitivity to input, from the environment to the five senses, that is, sight, hearing, touch, smell and taste. People with ASD all share difficulty in making sense of their world (Halgin & Krauss-Whitbourne 2007:349). Adding to the definition five broad domains of behaviour may be included (Scheuermann & Webber 2002:9-10; Willis

2006:29-30), namely an inclination towards violence, self-injury, destruction, disruption and excessive self-stimulation. Delays in motor skills are also noted in autistic learners (Smith 2012:8).

Communication impairments vary among autistic learners. Many autistic learners have no spoken language (Smith 2012:6). Those who do speak usually do not integrate their language abilities into appropriate social interaction or emotional attachments. Echolalia and incessant speaking in a monologue is common amongst autistic learners (Halgin & Krauss-Whitbourne 2007:349; Frith 1996 in Scheuermann & Webber 2002:7). The utterances seem to stem from rote learning. In order to overcome the language deficits the autistic learners may learn to use the picture exchange communication system (PECS) (Smith 2012:6).

ASD has been observed to affect every aspect of an autistic person's daily life, including social inclusion. Autistic learners generally show little interest in other people and fail to learn from their natural environment as successfully as other children. Autistic learners cannot relate to others emotionally (Halgin & Krauss-Whitbourne 2007:347). Kanner (1973:42 & 123) says, *"autistic children come into the world with an innate inability to form the usual, biologically provided affective contact with people, just as other children come into the world with innate physical or intellectual handicaps"*.

Autistic people avoid eye contact with other people and this leads to their inability to interpret non-verbal cues of communication, for example, facial expressions (Halgin & Krauss-Whitbourne 2007:349; Magyar 2011:6). They have difficulty interpreting what others are thinking or feeling because they cannot understand social cues, such as tone of voice and do not watch other people's faces for clues about appropriate behaviour (Halgin & Krauss-Whitbourne 2007:349; Koudstaal 2005:313). All this diminishes their chances of learning from the social environment. Autistic learners find it difficult to make and maintain friendships (Spears& Turner 2011:13). When under stress, autistic learners may react to the environment by engaging in stress relieving activities which may include body rocking, pacing, waving or flapping hands or fingers repetitively, chewing on their clothing or body, or hitting themselves or showing aggression towards others (Koudstaal 2005:316; Willis 2006:9).

Despite their impairments some autistic learners may have an unusual disorder called autistic savant syndrome (Halgin & Krauss-Whitbourne 2007:350; Wall 2010:11). Such individuals possess extraordinary skills, such as the ability to perform extremely complicated numerical operations or may possess musical talents obviously above the general level of the common population norm.

Under the ASD umbrella ASD is an umbrella term under which autism, Asperger's disorder, Rett syndrome, childhood disintegrative disorder, and pervasive developmental disorder-not otherwise specified (PDD-NOS) (Koudstaal 2005:307; Wall 2010:12-13; Willis 2006:18-19) are included. Autism

usually includes other overlapping conditions, such as epilepsy, intellectual impairment (Koudstaal 2005:317; Magyar 2011:13), and a substantial overlap of attention deficit hyperactivity disorder (ADHD) (Kauffman 2005:518). Aggression and anxiety disorders may also be common among autistic learners. It was revealed that 70.8%children with ASD met the criteria for psychiatric disorder described within the Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV) (Kendall, Megnin-Viggars, Taylor, Burt and Baird 2013:1; Simonoff, Pickles, Charman, Chandler, Loucas & Baird 2008:926). Autistic learners may also exhibit associated disturbances in such areas as executive functioning and sensory processing (Boutot & Smith Myles 2011:38). The researcher's experience has shown that the overlapping conditions can be severe and some learners may need medication for the rest of their lives. Hence, educators face challenges and extra responsibilities in educating autistic learners in an inclusive setting.

2.2.2   Age of onset and aetiology of autism

The causes of autism are not known. It is suspected that autism could be a result of neurological impairment affecting brain chemistry and/or brain structure (Harvard Medical School 1997 in Scheuermann & Webber 2002:2; Magyar 2011:4; Smith 2012:11). In children with ASD the brain develops differently from typically developing children. Genetic factors are also suspected to contribute towards causes of autism (Smith 2012:11; Wall 2010:12). Some families have multiple children diagnosed with ASD. Autism is an in born disability. Although the exact aetiology of the disorder is unknown, the symptoms are well defined. This provides essential information for educational interventions (Scheuermann & Webber 2002:2). Some children with autism are diagnosed by the time they are two to three years of age and often in a regressive manner, but for others the symptoms are not recognized until they are older (Wall 2010:5; Willis 2006:20). Speech development may often be delayed (Wall 2010:8). Understanding how best to educate autistic learners should be based on an understanding of autistic symptoms.

2.2.3   Identification and assessment of autistic learners

Diagnosis is a complex process because only particular combinations of several traits can lead to identification. Kanner (1973:120) suggests, *"Observations should begin with simple instances, ascent being made from them step by step through appropriate generalizations, and no particulars should be neglected."* The medical evaluation is usually completed by medical specialists, such as a paediatrician, psychologist, psychiatrist, or a team of medical experts (NZMOE 2008:37). A second evaluation given by educational personnel can determine whether the child is eligible for help. There are benefits to an early diagnosis of autism. The sooner a child starts receiving treatment, the better the prognosis is likely to be (Willis 2006:20; Magyar 2011:31). Autistic symptoms are always recognisable in adulthood because of associated social judgement and empathy deficits (Scheuermann & Webber 2002:5).

The core autistic deficits and associated impairments have a direct effect on the assessment process. Formal tests, such as norm-referenced tests, are the most commonly used formal assessment procedure (Boutot & Smith Myles 2011:42). These tests help compare the autistic learner with their age group, grade level, ethnic, socio-economic status as well as geographical region, and many others. In order to assess against defined objectives, criterion-referenced tests are used.

Informal assessments are centred on individual performance, rather than in comparison with other learners (Boutot & Smith Myles 2011:43). Informal assessments are more helpful for individual goal setting and in determining appropriate instructional strategies (43). Taking the factors in mind that influence the lives of autistic learners, the research problem will now be discussed.

2.3   INCLUSIVE EDUCATION AND RELATED THEORIES

The UNESCO Convention against Discrimination in Education (1960:4) and other international human rights treaties prohibit any exclusion from or limitation to educational opportunities on the bases of socially perceived differences. Education is about being proactive in identifying the barriers and obstacles learners encounter in attempting to access opportunities for quality education, as well as in removing those barriers and obstacles that lead to exclusion. Inclusive education is based on human rights and social justice principles (Dempsey 2001:36). Most countries reviewed their education legislation for learners who experience barriers to learning after the UNESCO Salamanca Statement of 1994. UNESCO declared that learners with special educational needs must have access to regular schools which should accommodate them within a child-centred pedagogy capable of meeting these needs.

> *- --all children should learn together, wherever possible, regardless of any difficulties or differences they may have. Inclusive schools must recognize and respond to the diverse needs of their students, accommodating both different styles and rates of learning and ensuring quality education to all through appropriate curricula, organizational arrangements, teaching strategies resources and partnerships with their communities* (UNESCO1994:11-12)*.*

Rather than a few students being seen to have special needs such as was the case with the medical model which preceded inclusive education, schools should regard all learners' needs as part of the fabric of human experience (Christensen 1992 in Dempsey 2001:37). It can be said that *"Inclusive education is a move away from the medical model",* because inclusive education stresses the surrounding of the learners with specialized services of support for them to learn more effectively (O'brien & Ryba 2005:23). The overall goal of inclusive education is to increase learners' participation in the cultures, curricula and

communities of their local schools (MacArthur, *et al.* 2005:49). Andrews and Lupart (2000:7-10); Dempsey (2001:40-43); MacArthur *et al.* (2005:51) and Vlachau (1999:35) concur that guiding principles for inclusive education include:

- The least restrictive environment should be created for all learners;
- The teaching of functional skills to suit the needs of learners on different levels;
- Meeting the diverse needs of all learners within an equitable and accepting education system;
- Ensuring that all learners take a full and active part in school life, and are valued as integral members of the school community;
- School-home partnership to ensure collaboration and continuity in implementing set programs;
- Promoting an understanding of equal rights for all human beings.

Schools that work to attain this goal focus on change at a number of levels which the Queensland Education Department cited by O'Brien and Ryba (2005:50) state as:

- Level of educational policy;
- School organization;
- Structure and ecology that allow inclusion of all learners

Inclusion does not necessarily imply that learners have to spend the entire school day in general education classes; they can be taken out of the class for a small part of the day to cater for individual needs that lie beyond the normal scope of their daily needs (Andrews & Lupart 2000:15). There are different possibilities and for that reason the strategies of the TEACCH model need to be perused in this study.

Funding is another crucial factor for inclusive education and the effective implementation of TEACCH or any other intervention program. Most educators agree that funding is very important for the provision of space, planning time, smaller classes, and recruitment of highly qualified teachers (Janney, Snell, Beers, & Raynes 1995; Minke, Bear, Deemer & Griffin 1996 in Andrews & Lupart 2000:15). Teachers with adequate knowledge and experience who have the necessary equipment to teach autistic learners find it easier to move past the fears some other teachers experience when faced with educating an autistic learner (Spears & Turner 2011:105).

It is within this context that those who experience barriers to learning receive service and support, within the actual systems and settings where it is required to ensure their effective learning.

2.3.1   Vygotsky's learning theory

What individuals come to know and believe is largely based on the social and cultural process in which they are raised (Hall 2007:96). Vygotsky stressed that children's intellectual development is fostered by social interaction with people such as parents and teachers (Hall 2007:96; Moshman 1997 and Palinscar1998 in Woolfolk 2007:41). The assumption of Vygotsky's learning theory is that what a person does with another person today, they can do it on their own tomorrow. Learners can learn from peers as well. As learners interact with others in their social environment, they acquire different forms of knowledge, skills, ideas, language, values, and dispositions of the social group (Vasquez 2006:36 cited by McInerney & McInerney 2010:53; Woolfolk 2007:39; Long 2000:35). This can be very difficult for autistic learners since they lack responsiveness to the environment and their generalization abilities are limited (Hume, Loftin & Lantz 2009:1331). As far as autistic learners are concerned, they can achieve Vygotsky's zone of proximal development with assistance. This results in that if TEACCH is to be implemented, it has to be individualised in order to make appropriate adaptations. Autistic learners need structure and individual work systems, which TEACCH provides, in order to master a concept or a skill. They feel safe and secure if teaching is structured and predictable. Security enables them to use senses and abilities.

Culture, especially language since it is the teaching tool, shapes cognitive development (Hall 2007:96) by determining what and how the child will learn about the world. Higher mental processes in the individual have their origin in social processes. There is emphasis on the role of language in cognitive development, as its use in social contexts is also the main vehicle for developing later knowledge and understanding (Long 2000:35). This is possibly the crux of autistic learners' problems, because they find it difficult to learn from their environment as they lack interest in other people.

Vygotsky believed that facilitation in the learner's environment plays an important part in language and thought. The source of mediation can either be a material tool (such as an abacus), a system of symbols (such as the alphabet), or the behaviour (simple gesture) of another human being (Kozulin 1994:114; Woolfolk 2007:41). This is where TEACCH plays a crucial role. Vygotsky advocated collaborative learning in which there is participation and sharing of ideas (Kozulin 1994:274). As learners engage in activities with adults or more capable peers, there is an active or passive exchange of ideas and ways of thinking about representing concepts (Hall 2007:96; McInerney & McInerney 2010:54). These co-created ideas are then internalized by these learners.

2.3.2   The bio-ecological paradigm

World-renowned psychologist Urie Bronfenbrenner is seen as the founding father in the development of the ecological philosophy on which inclusive education is based (later re-named bio-ecological philosophy). Bronfenbrenner's model stresses the important developmental influences at work in the settings in which children and families live and, by the larger contexts in which those settings are embedded (Hooper & Umansky 2004:111; Swart & Pettipher 2005:10). Bronfenbrenner's model perceives every individual as a part of the social community and, therefore, to be included in word and deed by the community.

There is concurrence of Bronfenbrenner's model and Vygotsky's theory that social structures are implicated in learning which include *"family, social, political, religious groups and organizations representing social structure"* (Long 2000:35; McInerney & McInerney 2010:54). Human development is viewed as extending beyond the immediate family to the national and societal. It emphasizes four principles; personal factors - which include certain behaviour patterns, process factors - which include interactions that occur in settings, contexts, such as different institutions, and time factors (Swart & Pettipher 2005:10). Thus, a basic premise is that each environment exerts dependable influences on all those within that setting (Smith 2004:316). Since the bio-ecological involves the wider society, some ecological factors (especially language) can make the implementation of TEACCH very hard. In addition having resources required to implement TEACCH in each and every setting can be very difficult as well.

The ecological model is fundamentally part of inclusive teaching where it vies to create functional person-environment interactions (Gutkin & Reynolds 2009:484). This model advocates for considerable emphasis to be placed on school improvement and effective teaching to assist schools to become more capable of responding to the diversity of their autistic learners. If autistic learners are provided with resources required to implement TEACCH or other intervention programs they can function more effectively in their day-to-day environments.

Both Bronfenbrenner's theory and Vygotsky's learning theory form enabling foundations for the practice of supporting the autistic learner to learn and interact in an environment where few adaptations are needed when the learner leaves school and enters the working environment.

2.4   LEGISLATION AND POLICIES

Legislation and policies for autistic learners may slightly differ from country to country. Policy and systems always reflect current values and underlying assumptions that are subject to change (Fraser,*et al.*2005:22). Also, no matter what the purpose of the policy is, it will be embedded within the political,

social and economic context of the time. This section will present a discussion of the legislation and policies of the USA, South Africa and New Zealand regarding the education of learners who experience barriers to learning (which includes autistic learners).

The USA Public Law 94-142 fundamentally changed the lives of learners who experience barriers to learning, as well as families and professionals. There is a requirement that *"every local school district receiving federal funds to find and educate at public expense all learners"* experiencing barriers to learning in its jurisdiction, regardless of the type or degree of their disability (Boyer 1979:299).The policy opened school doors for all children.

The US Congress passed the Individuals with Disabilities Education Act (IDEA) in 1975 after the Supreme Court ruled that all learners who experience barriers to learning were entitled to a "free and appropriate" education in the public schools (Boyer 1979:298). The development and monitoring of written educational plans for students with disabilities has been required since the inception of federal special education legislation in 1975. Autism was not a separate category under Public Law 94-142, but was included under the category of serious emotional disturbances until 1981 (Zager *et al.*2012:8). In 1990, the law included autism as a separate category. IDEA mandates that schools are responsible for providing a free, appropriate public education for autistic learners as well (Zager *et al.* 2012:8).

The New Zealand Education Act states that people who experience barriers to learning (whether because of disability or otherwise) have the same rights to enrol and receive education at state schools as people who do not (New Zealand Ministry of Education [NZMOE] 1989 section 8:1). In 1995, a set of Special Education Policy Guidelines was introduced as Special Education 2000 (SE2000). It restructured the way resources and service provisions were distributed to learners who experienced barriers to learning. It also changed the way schools managed special education resources. The 1996 Budget brought in the Special Education 2000 policy. The aim was to *"achieve, over the next decade, a world class inclusive education system that provides learning opportunities of equal quality to all students"* (NZMOE 1999:5).

These guidelines state that *"Learners with a disability, learning difficulty, or behaviour difficulty may receive special education when they have been reliably identified as needing alternative or additional resources to those usually provided in regular education settings"* (NZMOE 1999:5).

The policy had two major components:

•	Information, education and specialist support to assist families, schools and teachers to achieve the best possible learning environment for all learners who experience barriers to learning;

- A significant increase in funding to provide assured and predictable resourcing for individual learners and schools (NZMOE 1999:5).

Some autistic learners may fall under the Severe Behaviour Initiative (SBI) which is designed to serve students who show the most extreme behaviour difficulties in the school and the classroom (NZMOE 1999:13). This program is designed to provide assessment and intervention which will make an on-going positive difference in students with a history of extreme behaviour. In order to be eligible for funding under the On-going Resourcing Scheme (ORS), students should have their needs verified against specific criteria. The verification process constitutes an important component of ORS. Once their needs have been verified, students under ORS get a staffing entitlement of 0.1 for high needs, or 0.2 for very high needs (NZMOE 2002:17) which is *"17.5 teacher aide hours each week for a student with very high needs, and an estimated 10 teacher aide hours each week for a student with high needs"* (NZMOE 2009:4.10-4.11) (see Appendix H). ORS is pooled nationally by the NZMOE. This is then distributed to districts for allocation to students. *For the Severe Behaviour and Speech Language Initiatives, districts receive funding allocations based on the total student population of each district. The allocations may not match the level of need in a particular district"* (NZMOE 2012:4.2). Despite the different types of funding available for learners who experience barriers to learning, the New Zealand Herald (25 January 2010) reported that the landmark High Court judgment earlier that month found that special education policies had failed children legally as well as educationally, since many children were left with less support than they had under the old policy.

Most countries concur in their requirements for the education of learners who experience barriers to learning. All learners are guaranteed the right to education in these countries, and with the technological changes that are taking place, it is mandatory that every school should update its infrastructure to ensure that all facilities are accessible to disabled/impaired learners (Swart & Pettipher 2005:4).

2.5   PROGRAMS FOR THE TEACHING OF AUTISTIC LEARNERS

With the ever increasing prevalence of autism spectrum disorders (ASD), more intervention options for autistic learners are coming to the fore. Although there is no cure for autism, educational intervention plays a large role in improving the outlook for most autistic learners (Koudstaal 2005:318).

There are evidence-based practice programs that have been proven to produce significant benefits (Wilkinson 2010:99) especially strategies based on ABA, for example, TEACCH and SPELL (Structure, Positive, Empathy, Low arousal, and Links). SPELL borrows heavily from TEACCH (Atherton & Crickmore 2011:368), and hence these two methods can easily be used together. Early intervention will greatly improve the outlook for most young children with autism. Intervention is most successful when it is

geared toward the child's particular needs. The goal of these programs is to help learners to attain the best possible result of comfort and smoothness of functioning. Since individual autistic learners have varying degrees of intellectual abilities, developmental discrepancies are often observed. This attainable, most favourable condition differs with each individual's somatic, intellectual, and socio-cultural predispositions, all of which should be investigated carefully before a plan for intervention is outlined (Kanner 1973:120).

Autistic learners benefit greatly from educational programs. These learners need to receive education in an inclusive setting, if possible, as this will expose them to a socially appropriate peer group (Koudstaal 2005:318). Autistic learners tend to have excellent long term and rote memory abilities, and it is advisable to capitalize on their strengths.

2.5.1   TEACCH

TEACCH (Treatment and Education of Autistic and Communication Handicapped Children) is an intervention program that advocates organising the learning environment and producing autism-friendly processes and styles (Koudstaal 2005:322). TEACCH emphasizes visual supports and *"its aim is to increase and maximize independent functioning and reduce the frequent need for teacher correction and reprimand"* (Schopler *et al.* 1995 cited by Hume et al 2009:1334). The use of TEACCH involves use of very high structure for the autistic learner to cope in any environment. TEACCH's major components are physical structure (arrangement of furniture), visual schedules clearly depicting sequence of events, work systems showing what is to be done and how, and task organization (Mesibov & Shea 2009:3; Schopler *et al.* 1995 cited by Hume et al 2009:1334). People who implement TEACCH need to have a very good understanding of autism.

Autistic learners tend to be inattentive and find it hard to focus on one thing for a short time and may get bored with a task after only a few minutes, hence the importance of visual supports (Shapiro & Accardo 2008:143). In addition, it is hard for autistic learners to focus their attention deliberately on the organization and completion of a task or learning activity (Dulcan 1997 and DuPaul & Stoner 1994 cited by Kauffman 2005:318).Visual symbols include the use of TEACCH, the Picture Exchange Communication System (PECS), and visual schedules. Visual symbols include tangible or real objects, pictures, rebus symbols, line drawings, spots and lines on the floor, timers, written schedules, and specific boundaries (National Research Council 2001:58). Use of visuals requires the child to have visual skills for observing and remembering visual patterns, and the skill to use them when needed. The extent to which autistic children have these skills is quite variable (Rutter & Schopler 1978:441).

Environments for the students are organized with clear, concrete, visual information. Parents are considered part of the team and are taught strategies for working with their children (Dawson 1989:377). Programming is developed for each child, based on an individual assessment of the child's strengths, learning style, interests, and needs.

A thorough developmental assessment is mandatory before introducing the TEACCH program to autistic learners, as they seem to store the semantic structure of an utterance without the meaning accompanying it (Schopler & Mesibov 1985:11). This means that the teacher needs to make sure that the autistic learner knows and understands what the visuals really represent. There is the need to modify instruction to suit each child's individual learning styles and needs, and the teachers of autistic learners need to be competent in a wide range of educational strategies across various teaching traditions. The TEACCH program's long term goals are community integration and adult independence to the maximum extent possible (Mesibov & Shea 1996 in Fittipaldi-Wert 2007:13).

The use of work systems increases the autistic learner's overall productivity when the learner knows how much work there is to do, as well as when and how it is to be finished (Pierangelo & Giuliani 2008:47). Autistic learners tend to have excellent long term and rote memory abilities, and it is advised to capitalize on their strengths when implementing TEACCH. An important part of the TEACCH program is the designing of an individual intervention plan for each autistic learner (Steerneman, Muris, Merckelbach & Willems 1997 in Peerenboom 2003:15). It is important to evaluate the instruments and processes that are used to assess these skills and deficits, because if they are inaccurate, treatment would therefore be ineffective.

Many autistic learners have receptive language delays, and have difficulty following conversational exchanges or understanding directions or questions. Their decreased communication skills often hinder their participation in a general educational environment (Pierangelo & Giuliani 2008:13). Deficits in communication skills can lead to behaviour problems that additionally hinder autistic learners' functional, social and academic participation in inclusive environments. Visual support tends to reduce the confusion and distress that can be caused when too much language processing is required (Mesibov, Shea & McCaskill 2012: 103).Visual support remains in place over time, but spoken instruction takes place in a discrete time period, and then vanishes, and may not be adequately processed and remembered (103). Another strategy suggested by Dettmer, Simpson, Smith Myles and Ganz (2000:164) involves the use of a visual/auditory warning device to alert the learner to the remaining time or end of an activity. Erpelding (2012:80) observed that some general education inclusion teachers implemented a physical structure more effectively in their classrooms, but struggled with the implementation of visual schedules. Visual schedules and related components were not consistently used throughout the day. It was also clear that the students had not been taught how to use a visual schedule.

The day- to- day complexities of secondary school organizations as well as physical environments call for independent behaviour as learners have to find their way from one class to another, and with a different teacher for every class (Hume, Boyd, Hamm & Kucharczyk 2014:2). This can be very stressful for the autistic learner, and the changes can result in difficult behaviour. Transition programs create a crucial part of reducing levels of isolation, and increasing levels of positive attitudes toward, and participation in, school and learning activities (Centre for Mental Health in Schools at UCLA 2001:19). Teachers should plan, develop, and maintain a focus on transition concerns confronting autistic learners. This is why the use of TEACCH is very important. TEACCH is not a teaching or learning system, but a behavioural management system. Since autistic learners' behaviour is easily disrupted by changes in environment and routine, TEACCH programs adopt strategies to assist the child with the transition from one activity to another. Erpelding (2012:74) noticed that there were no transitional programs in one specific school. The teacher had to direct the learner to the next correct location physically.

The materials used in structured teaching are those that are regularly found in educational, vocational, and residential settings for autistic individuals. Autistic learners usually get stuck on certain subjects such as maps or cars. Autistic learners tend to get fixated on specific objects, and it is better to use these fixations to encourage school work. *"Structured teaching addresses challenging behaviour in a proactive manner by creating appropriate and meaningful environments that reduce the stress, anxiety, and frustration that autistic learners may experience"* (Pierangelo & Giuliani 2008:39).

From a wide variety of objects that are considered to be visual supports, it is necessary to consider each learner individually and establish a method for determining what type of visual support system will be the most appropriate intervention to address a learner's skill development across behavioural, communication, academic, and social skill domain areas. The TEACCH program capitalizes on a learner's interests, even though the area of over focus may be peculiar from a typical person's perspective (Geib 2011:30).

In the general classroom environment, it is important to consider learners' comprehension of the activities in that setting. Understanding that the expectations, requests, directions, peers, and language of the classroom environment are all key factors that contribute to autistic learners' success in an inclusive setting (Hodgdon 1999 in Cohen 2009:6). Structured teaching can be designed both for learners who function, communicate, and learn through objects, pictures, and other tangible methods, and for learners who find spoken and written language and other symbolic content meaningful. For developmentally advanced learners, visual support can generally be in written form - for example, reminders, rules, social stories and other meaningful forms (Mesibov *et al.* 2012:103).

Complementing spoken language in the classroom with visual supports can increase learners' comprehension and independent functioning of everyday communication and organization. Disorganization, difficulties with sequencing and time management, are characteristic of autistic learners (Hume& Reynolds 2010:230). Autistic learners can cope if they are provided with external organizational support. Visual support can help autistic learners to self-monitor, stay organized, and communicate. It also provides predictability and routine for students, acting as a reminder of behavioural expectations (Hodgdon 1999 cited by Cohen 2009:14). Task cards, with lists of things to do, may help them stay on track and manage their time. Once the learners are using their schedule, it is important to observe whether they are independent in using it.

Relevant strategies that teachers can use to engage student interest and attention include one-on-one or small group instruction, enhancing protective factors, and assets building as well as a variety of special assistance strategies (Centre for Mental Health in Schools at UCLA 2001:23). However, Erpelding (2012:75) observed that when a teacher was giving instructions, all learners were attentive, quiet and some took notes. The noise level was low when learners worked individually. The noise level rose when they worked in pairs or small groups, and the autistic learners would begin to fidget or cover their ears with their hands.

A non-distracting room will be free of clutter, and should not lead to sensory overload from any odours, and from visual and aural over-representation. Such a room will reduce sensory overload. The classroom arrangement should contribute towards the learner's grasp of order and space. A clean and distinct environment helps the autistic learner focus attention on learning, instead of irrelevant stimuli (Jooste & Jooste 2005:394; Smith 2012:15). To prevent behaviour meltdowns, it is of paramount importance to have a designated area where the learner can take a break prior to a situation getting out of control (Spears& Turner 2011:100).

In her study, Erpelding (2012:74) found some classrooms that had a physical environment that was free of distracting stimuli and well organized. Each classroom was laid out with specific district requirements However, there were other classrooms that had additional wall decor that made the classroom cluttered. "*Those classrooms had every wall covered from top to bottom with paper items that were not related to the monthly/weekly theme or students' art"* (74).A lot of students' work was posted, as were laminated posters and holiday decor on the walls in the students' work areas.

Children who participate in the TEACCH programs' performance have not been examined thoroughly/effectively (Wilkinson 2010:106). Larger, systematic and controlled studies are needed in order to evaluate the immediate and long term outcomes of the TEACCH program more effectively   In their study, Virues-Ortega, Julio and Pastor-Barriuso (2013:11), found out that the effects of TEACCH on

communication and daily living skills were not significant. However, social skills and adaptive behaviour showed some gains.

A drawback of TEACCH is that it is nothing more than behaviour management. The repeated references to routines, the need for predictability, accepting the subject's 'resistance to change', providing organization, using objects of obsession as rewards, and so on leads to TEACCH being regarded as having inadequate helpful evidence (Wall 2010:89). The autistic learner's day is filled with visual aids, which to a large degree take up all of their attention. Over time these become the focus of the education process, and a consuming task to the teachers implementing it.

TEACCH's emphasis on independent work skills leaves out other areas of functioning, such as communication and maladaptive behaviour (Siegal2003 in Geib 2011:30). TEACCH mentally shields the subjects from their surroundings, and it also hinders social acceptance, because of the learners' excessive focus on aids and charts and the stigma they carry with their peers. Rather than trying to overcome the autistic traits, TEACCH is more focused on accepting a child's autistic traits, at the expense of social interaction and verbal communication as these may not be as heavily stressed as other teaching methods. Kelly (2004:37) is afraid that autistic learners may become dependent - rather than independent - owing to the rapid change of routines in a secondary school day and their inability to adjust to change.

It must be noted that for every learner who makes significant progress using a particular method, there will be one who makes comparable gains with a different method (Siegel 2003 in White, Smith, Smith & Stodden 2012:10). The intensity of a program plays a role in its effectiveness. Prior and Roberts (2011:20) noted that, *"no single intervention resulted in the same outcomes for all children studied".* Technological advances have improved intervention programming for autistic learners.

2.5.2   Other interventions

It is better to use a combination of approaches as no one model has been proved to meet the needs of all autistic learners (Koudstaal 2005:320; NZMOE 2008:90). Different models have something to offer in particular situations. The selection of a specific intervention should be based on goals developed from a comprehensive assessment (Wilkinson 2010:101), and based upon individual needs, as numerous variables and barriers interfere with implementation of effective programs. The SPELL (Structure, Positive, Empathy, Low arousal, and Links) program was devised by the UK National Autistic Society in 2001 (Atherton & Crickmore 2011:368). SPELL is similar to TEACCH since it makes the world a more predictable, accessible and safer place, thereby reducing stress, and creating security within the learners' classroom environment (Wall 2010:91). Positive approaches, attitudes and expectations, that are achievable and realistic, yet still support development, are emphasized.

Low arousal must be brought about by an ordered calm environment, so as to reduce anxiety and aid concentration. Autistic learners may benefit most from supplementary relaxation and arousal reduction therapies, music and massage, sensory diet, and so on may be helpful in promoting calm and general well-being, as well as reducing anxiety. Links with everyone involved in the autistic learner's education is very important (Wall 2010:91).

Barton and Fein (2012:71-76) list other programs based on ABA; these include:

- Picture Exchange Systems (PECS);
- Pivotal Response Training (PRT);
- Discrete Trial Training (DTT);
- Incidental Teaching;
- Positive Behaviour Supports;
- Verbal Behaviour Analysis (VBA).

Precision teaching is also an ABA-based program (Kearney 2008:95).
Discussion of all the listed programs is beyond the scope of this study. TEACCH has been discussed in detail since it is the main focus of this study.

2.6 ROLE OF EDUCATORS FOR AUTISTIC LEARNERS

Educating autistic learners involves teamwork and collaboration. Educators have various experiences and opinions regarding the effective implementation of TEACCH. The experiences vary from funding, level of training, cooperation, class sizes and many more. Each team member plays a very crucial role. Depending on the learner's needs the team can include the classroom teacher, specialist teacher, speech therapist, occupational therapist, physical therapist, adapted physical teacher, school psychologist, school nurse, and teacher's aide (Kaweski 2011:33-34). Parents are also part of this team. The levels of training, expertise, knowledge and skills of the practitioners are more important than the physical nature of the setting (Wall 2010:137). Teachers and therapists need to gain knowledge and skills required for education of autistic learners, so that they become more competent in working with them (Mesibov & Shea 1996 cited byPrior & Roberts 2006:5).

2.6.1 Classroom teachers

It is imperative that teachers receive special training to use TEACCH (Schopler & Reichler 1976:358). Onbun-uea (2008:121) discovered that little knowledge or no training is one of the problems regarding delivery of the curricula to autistic learners in Thailand. Mainstream teachers need practical exposure to

autism, and extensive training on dealing with behavioural problems that are exhibited by learners with autism (Roberts 2007:54). Sandford (2009: XI) determined that the knowledge of, and practical experience with autistic learners, had major effects on the number and types of supports the participants reported using. Even little knowledge and experience is better than none. TEACCH developed a set of teaching strategies for the support of teachers that are designed around the characteristics of autism that affect learning (Mesibov, Shea & Schopler 2005 cited by Hume & Reynolds 2010:228). Additional information about appropriate teaching strategies and curriculum including environmental structures, communication, social skill development, as well as behavioural management, is also provided by Onbun-uea (2008:34).

Teachers must remember that autistic learners are "*visual learners living in a very auditory world*" (Hodgdon 1999:65). When the classroom is visually organized, the autistic learners know where the working place or place for leisure is, and thus they can expect what the next activity is going to be. Koudstaal (2005:322) asserts that if the environment is highly structured, learners are able to apply themselves to the learning activities, and thus make greater progress. Structured teaching places a heavy reliance on teaching through visual means owing to the difficulties that autistic learners have with processing verbal information. Also, it helps autistic learners with their executive functioning.

TEACCH also provides for support in developing administrative structures to facilitate individualization and assessment procedures for defining individual curricula within a developmental structure (Schopler & Reichler 1976:359). If all educators were to become familiar with programs such as TEACCH, it would make it easier for them to accommodate autistic learners.

2.6.2   Parents

Together with the teachers, parents play an important role in intervention, which requires a special openness on the part of the staff. The involvement of parents promotes transfer of learning from the classroom to the home (Schopler & Reichler 1976:359; Smith 2012:22). It is noted that some parents cannot be trained owing to their own psychological problems and others owing to the fact that they are working single parents. Also some parents may not be interested in the child at all, and some children may have to be cared for elsewhere because of their severe problems (Rutter & Schopler 1978:376).

The TEACCH approach has high regard and respect for parents as co-therapists (Lopez 2012:5). Professionals may have the knowledge of how to treat autistic learners, but parents are regarded as having a deeper knowledge and understanding of their own children in the TEACCH program. Working with parents and a comprehensive service network - including day and residential programs enhance the effectiveness of TEACCH (Dawson 1989:377). Howlin (2010:133) believes that, to date, the best

researched programs are those involving intensive, early, home-based intervention, and those with a focus on communication and parent–child interaction. There is agreement among professionals about certain imperative features of intervention, such as family involvement (Corsello 2005:74). Extensive training of parents can be of immeasurable help. One of the key factors of such training is to teach them to record reliable data (Rutter & Schopler 1978:371).

2.6.3   Specialist teachers

In some cases teachers are supported by teachers who have specialist training in working with learners who experience complex barriers to learning. *"Specialist teachers have expertise in behavioural management and development of social skills"* (British Columbia Ministry of Education 2000).STOS gives their services to enable learners on ORS enrolled at their local regular school to receive the best support and services they could to learn and achieve. The specialist teacher works as part of the learners' support team (the team includes the class teacher/s, support staff, Special Education, specialist services staff, and family).

NZMOE (2012:1) lists a range of specialist teaching and support activities provided by Specialist Teacher Outreach Services (STOS) as:

- Assessing learners' educational needs and planning appropriate programs;
- Teaching learners within the class or small group;
- Modelling effective teaching strategies, approaches and practices for teachers and teacher aides;
- Assisting teachers to differentiate class and school curriculum content;
- Adapting and preparing learning material resources;
- Monitoring learner progress and achievement and planning the next step;
- Making requests for specialist services support;
- Contributing to individual education plan (IEP).

On the other hand, according to NZMOE (2002:32), Resource Teachers: Learning and Behaviour (RTLBs):

- *Work with teachers to support students with learning and behavioural difficulties in the classroom;*
- *Involve parents and caregivers in managing students with difficult behaviour;*
- *Manage crisis situations involving individual students;*
- *Co-ordinate support across sectors;*

- *Develop strategies to reduce the number of students with severe behavioural difficulties.*

New Zealand teachers seem to regard the value of support from specialist teachers highly (NZMOE 2002:24).

2.6.4   Specialist services staff

Therapists' programs are important interventions in the education of autistic learners. Therapists use structured and intensive skill-oriented training sessions to help children develop social and language skills. Raburn (2010) lists available therapies that include:

- Occupational therapy;
- Physical therapy;
- Speech and language therapy;
- Music therapy.

These therapists work in collaboration with each other, teachers, parents, and sometimes paediatricians. Therapists' programs are important for skills development for which autistic learners may need special support. Among other things, these skills include motor skills, sensory motor skills, perceptual skills and language skills. Intervention is most effective if it is integrated into daily routines within naturalistic contexts to increase the retention and generalization of skills (NZMOE 2008:109).

2.7   EXPERIENCES OF EDUCATORS ON THE IMPLEMENTATION OF TEACCH

Principals, teachers and parents have various experiences and concerns regarding the implementation of TEACCH. Since no specific intervention program or model has been shown to be superior to another (Wilkinson 2010:155), the most effective interventions and programs are those that are based on the individual learner's unique needs, strengths and weaknesses. Obtaining accurate information about autism and information about the individual learners is one of most effective ways teachers can prepare for intervention and inclusion of autistic learners (Pierangelo & Giuliani 2008:181). Teachers must be conversant with the theories and latest research regarding the best practices for autistic learners, so that they can work effectively with parents, and with other professionals to set appropriate goals, and be familiar with the range of possible outcomes (National Research Council 2001:184). Without adequate knowledge or experience, teaching can be very stressful, and teaching a learner who presents considerable difficulties can be especially challenging (Saloviita, Italinna & Leinonen 2003 cited in Braiden, McDaniel, McCrudden, Janes & Crozier 2012:228).

2.7.1   Principals' experiences

Principals are concerned about funding for the implementation of any intervention program (NZMOE 1999:20). NZMOE (1999:20) goes further to say that principals reported negative experiences with ORS funding, pointing out that too few students were being funded (NZMOE 1999:20). There is a need for more funding for intervention to succeed, since more human resources are needed in inclusive settings. In a survey carried out by Massey University some principals reported not being able to hire experienced specialist teachers (NZMOE 1999:30). Principals reported finding it difficult to attract qualified people as part-time staff. Schools found that employment contract rates were changing, but the Special Education Grant (SEG) was not. Many schools reported an inability to hire specialists using SEG - particularly through the Specialist Education Services (SES), where they would usually go for support (NZMOE 1999:35).

Some principals seemed dissatisfied with the level to which new teachers were prepared to go to help learners who experienced barriers to learning. Mesibov and Shea (1996) in Prior and Roberts (2006:5) believe that a combination of experience, support and collaboration both within and outside the school, - and professional development courses, is likely to overcome these reported "deficiencies". The issue of high personnel turnover is another barrier to effective continuation of the TEACCH program, or any other intervention program (Kochhar *et al.* 2000:70).

2.7.2   Teachers' experiences

Although a solid body of research has established the efficiency of TEACCH, access to appropriate training and support in how to implement it, varies greatly. It can be hard to translate research findings to inclusive classroom settings. Autistic learners appear to have 'over-focused' attention, responding only to a subset of environmental cues during learning situations, and they take longer to disengage and shift attention than the average learner (Hume& Reynolds 2010:229). This makes it hard on the teacher who has to focus on other learners' individual support, to direct the autistic learner to the task board/schedule all the time. *"The typical high schoolteacher is responsible for 120 to 180 students per day which leaves teachers little opportunity to monitor their students' academic, social, or behavioural and progress"* (Baker *et al.* 2001 in Hume, Boyd, Hamm & Kucharczyk 2014:3). Despite this, teachers attributed success in implementing TEACCH to the "hands on", one-to-one help provided by paraprofessionals (NZMOE 1999:21).

Most teachers highlighted, that for programs to be more effective, separate classes that exclusively serve autistic learners, have to be maintained to cater for their needs (Smith 2012:26; Wilkerson 2012:115). If the teachers are to follow the TEACCH program properly, autistic learners place a heavy burden on

teachers and cause stress, as teachers have to make a lot of visual aids for every activity in order to accommodate the learners' needs (Stoiber, Gettinger & Goetz 1998 in Kelly 2004:39; Zajda 2011:291). These challenges are compounded by a lack of resources, especially in terms of time needed by teachers to acquire the desired know-how (Franzone, Kucharzky, Sullivan & Szidon 2012:132). *"Teachers reported the main effects on them as increased demands on their time, the need to seek advice from specialists, having to co-ordinate programs, and an increased need to work with other professionals and paraprofessionals"* (NZMOE 2002:23). This leads to teachers adapting some programs if they do not fit well with their class plan and this influences the effectiveness of the program (Koegal, Matos-Fredeen, Lang & Koegal 2011:7).

Researchers such as (Erpelding 2012:83) and (Magyar 2011:20) believe that one of the biggest challenges for teachers in inclusive education is how to provide instruction to autistic learners that is effective, inclusive, appropriate, and acceptable. Most teachers are not adequately trained to teach autistic learners (Magyar 2011:20). Lack of professional development, or specific training in catering for autistic learners, is a negative factor. In New Zealand all qualified teachers are required to participate in ongoing professional development programs to retain their registration, but, there is no requirement to keep learning about special education, particularly autism, despite the rising challenges in the field (New Zealand Ministry of Education 2010:14). There are some teachers who are taking the initiative to gather information about autism, and about effectively implementing intervention through training provided by their local school district, regional training, information presented at state conferences, through reading journals and books, and via internet sites (Austin 2011:90). Others gain knowledge through talking to or observing teachers with experience teaching autistic learners.

Support from other professionals inside and outside the school was seen as confidence building, especially when it involved some observation in the classroom (NZMOE 1999:15). To ensure the success of TEACCH, the use of teacher-aides, IEPs and adaptation of the curriculum were reported to be the main measures.

2.7.3   Parents' experiences

TEACCH may not be as effective with learners if parents' philosophical views differ from that of the TEACCH program. Differing views between the parent and the TEACCH implementer may have negative effects on the intervention outcome (Powell 2012:77). In a survey carried out by some Massey University lecturers some parents talked about working in partnership with schools to implement set programs, while others did not feel they were being treated as partners, or suggested they might be in danger of being "left out of the loop" (NZMOE 1999:63).

Co-ordination provides an opportunity for a collaborative team approach to the development, delivery and monitoring of a plan to support learners and their families (British Columbia Ministry of Education 2000). BCME adds that such an approach helps in that if individual team members change over time, the set plan will be carried on. The learner and the family will always have someone from the team members they know.

Parents believe that establishing and building expressive communication is a primary need for autistic learners (Geib 2011:78). Parents highlighted the need for autistic learners to be educated by professionals that are skilled and trained specifically to work with this unique and diverse population so that TEACCH or any other program can be implemented effectively. Parents rated the contribution made by teacher aides towards implementation of TEACCH, highly, but they expressed concern that *"increasing demands were being placed on teacher-aides to cope with students with high and very high needs. The question was raised in the evaluation whether teacher-aides are sometimes being used when more specialist services would be appropriate"* (NZMOE 2002:24). Some parents were concerned about large classes, which could lead to the autistic learner's programs being overlooked, and a lack of structure in inclusive settings (Kassari *et al.* 1999 in Kelly 2004:38).

The earlier the diagnosis of ASD is made, the more impact early intervention can have, resulting in fewer challenging behaviours and better outcomes for families (NZMOE 2008:34).

2.8   AUTISM IN SECONDARY INCLUSIVE EDUCATION

Despite the government's policy of inclusion of learners who experience difficulties in the classroom, mainstream schools find it difficult to integrate pupils with autism. Some evidence suggests that autistic learners may learn a great deal more, and regulate challenging behaviours more successfully, with adults with whom they have established a rapport than with others (McLaughlin & Carr 2005 cited by Smith 2012:10). In a secondary school, this is practically impossible. Besides the high rate of transition in a day, autistic learners have pull-out services for part of the day (Smith 2012:25).

The feasibility of including autistic learners is very debatable. The perception of both mainstream and specialized teachers in South Africa, is very negative in terms of the inclusion of autistic learners in South African schools (Roberts 2007:i). The results of Roberts's study suggested that neither of the sample groups viewed the South African context as being ready for the inclusive education of autistic learners. Yet, the major principles of the No Child Left Behind (NCLB) Act of 2001 would have had the greatest effect on teachers, parents, and administrators - *"including ensuring accountability for results, using scientifically based instruction, as well as providing highly qualified teachers and paraprofessionals"* (Yell, *et al.*2005:130 & 133). Teachers and other stakeholders need to be kept motivated and to ensure that all

people involved in the education of autistic learners are pulling in the same direction (South Africa Department of Education 2005: 16) new. In a previous study it was discovered that teacher aides were more positive about autistic learners than teachers (Emmam & Farrell 2010 in Cavanaugh 2012:13). Cavanaugh (2012:13) concluded, *" . . . since teachers carry the primary responsibility for ensuring that all students meet the academic standards, they experience increased tension with students with ASD; consequently, the teacher-student relationship suffered as a result."*

Mainstream teachers are likely to find the behaviour of autistic learners hard to control and will need training to have specific strategies (especially TEACCH) in place to deal with this behaviour, as well as to deal with the impact it may have on the other learners in the class. The inability to imitate, initiate and respond, as well as the corresponding dependence on the adult, place unusual demands on the teacher (Wing 197:sp cited by Rutter & Schopler 1978:442; Smith 2012:26). Hume *et al.* (2014:4) reveal that even in adulthood autistic people, with or without intellectual disabilities; have been found to be heavily dependent on others. If the teacher does not have an aide, depending on the severity of the autism, either the autistic learner will be ignored or the other students may be neglected, as the teacher will primarily attend to the autistic learner in an effort to implement TEACCH successfully.

For the autistic learner, skills that are likely to be critical in an inclusive setting include learning readiness, such as following directions; attending to the teacher or instructional materials; working on a task until completed; and requesting preferred items, information, and assistance (Smith 2012:111). Many traditional educational techniques, appropriate for other learners, are particularly ineffective for autistic learners. The successful inclusion of autistic learners in the regular educational setting will depend on the severity of the disability, the attitude and training of the teachers, peer models, the collaboration of the educating parties involved, as well as the use of other technology (Grossi-Kliss 2006:5-6 & 119; Myles, Simpson, Ormsbee & Erickson 1993 in Mesibov & Shea 1996:342; Smith 2012:26). Although the positive attitudes of teachers are important, more scientific research and reports of success will be necessary to convince schools to accept autistic learners into mainstream schools (Sandford 2009:XI). On the other hand, research on learners in Sicily proved the inclusive value of TEACCH, contradicting the opinion that it could not be implemented in an inclusive context.

2.8.1   Autistic pre-adolescents

Typically developing adolescents are at Piaget's formal operations stage (12-18 years of age). By the time they are 15, their cognitive structures are similar to those of adults'. Mental capabilities include such things as the ability to reason effectively, solve problems, think hypothetically, reflect, and plan for the future or set personal goals (American Psychological Association 2002:11). Adolescence is supposed to

be a time of increased independence and behavioural autonomy, but for the autistic adolescent functional independence rises and then it declines (Smith et al. 2012 in Hume *et al.* 2014:2).

2.8.1.1   Cognitive development

Abstract thinking leads teenagers to consider various points of view, do philosophical reasoning, consider a full range of prospects, and to use symbols related to abstract concepts logically in subjects such as algebra and science (Keating, 1990 cited by APA 2002:11; Weiten 2005:306: White, Hayes & Livesey 2005:139). This leaves out the autistic adolescents who are mainly concerned with details, rather than the big picture, and their concern with details explains why they are able to develop special talents and become trivia experts in specific areas (Sigelman & Rider 2006:462; Smith 2012:15). Owing to their inability to think flexibly, autistic learners have difficulties organising multiple pieces of information simultaneously to form concepts, and can be overwhelmed when presented with too much information to process. This is where the TEACCH approach helps the autistic learner break down concepts into manageable units.

Unlike typically developing adolescents, most autistic adolescents lack theory of mind, display poor executive function, weak integrative abilities, or display other cognitive impairments which might have improved slightly or immensely (depending on the individual) owing to interventions (Sigelman & Rider 2006:187). Overreliance on the prompts and feedback of caregivers are significant contributors towards cognitive functioning, and core deficits in autistic learners' social and communication skills (Hume, Loftin & Lantz 2009:1330).

As new friendships in middle and high school are formed on the basis of interests, strengths and aspirations, autistic adolescents are at a more increased risk of alienation and school failure if their difficulties are not understood and addressed (APA 2002:13; Carter, *et al.* 2013:2). Hormonal changes and the increased demands of school can exacerbate learning disabilities for autistic adolescents. In addition, problems with processing verbal information or poor reasoning skills can drive them further from their peers. Mental development is an advancement of mental processes as a result of natural growth and environmental experience (Kozulin 1994:271). The average, ordinary adolescent often questions and analyses more extensively, while the autistic adolescent's thinking is rigid. Professionals can educate parents about their role in fostering "normal" cognitive competencies and in engendering feelings of competence in their children. Research has found that feelings of competence in adolescents are directly linked to feeling emotionally close and accepted by parents (Ohannessian, Lerner, Lerner, & Eye, 1998 in APA 2002:12). These feelings might not be evident in autistic adolescents.

2.8.1.2   Social Development

Adolescents developing in the usual manner acquire social skills through direct observation of appropriate social models, opportunities to practise the observed skills and receiving feedback on their performance (Magyar 2011:143; National Research Council 2001:77). By exploring different peer relations, teenagers learn about friendship, loyalty, and individual differences. Generally, autistic teenagers lack either the desire or need to interact with others (Wall 2010:5). Most have difficulty in sustaining a back-and-forth interaction, because, when they respond to their non-autistic counterparts, the timing or contents of their responses seem to be inappropriate and odd (Koudstaal 2005:310; Smith 2012: 5 & 13). The difficulty with perspective taking makes different social interactions challenging. However, some high school level autistic learners may show dramatic improvements in their socialization and self-sufficiency skills during later adolescence and young adult years (Magyar 2011:5). Others may show very little progress, despite intensive intervention. The over-shadowing fact of the improvements may be that social rules and over-polite behaviour are usually learnt by rote and applied without regard to the situation or the person involved (Wing 1991:4 in Koudstaal 2005:311).

For autistic learners developing social skills often requires direct instruction. The social skills intervention protocol focuses on the development of pro-social behaviours that are developmentally appropriate and relevant to the learner's social environment (Magyar 2011:143). Several approaches, which should include peer interaction, can be used. If little or no positive interaction happens with typically developing peers, the main purpose of inclusion is defeated. Autistic learners lack social skills that are crucial in an inclusive setting (Smith 2012:111).

One of the factors that need careful deliberation is the fact that autistic learners' specific behavioural problems can cause interrelationship problems between the learners and those with whom they interact (Dednam2005:368). Other learners in an inclusive classroom could become anxious and be alienated by their autistic classmate's monotonous and obsessive behaviours. Conversely, it has been proven that autistic learners who are fully included (a) display higher levels of engagement and social interaction, (b) give and receive higher levels of social support, (c) have larger friendship networks, and (d) have developmentally more advanced individualized education plan goals than their counterparts in segregated placements (Fryxell & Kennedy, 1995; Hunt, Farron-Davis, Beckstead, Curtis, & Goetz, 1994 in Harrower 2001:763).

Learners should be held accountable for developing learner cultures that do not exclude autistic learners and other learners who experience barriers to learning (South African Department of Education 2005:24) They also need to be taught how to interact with autistic learners, to sometimes help the autistic learners

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cope with the TEACCH program and other programs, and should be trained to desist from giving too much sympathy, because too much sympathy defeats the purpose of inclusion.

2.8.2   What to consider in educating autistic learners

There is still considerable debate in the field regarding the most effective intervention programs for children with autism. Although abundant research has been done on autism, it has not addressed issues directly related to the effectiveness of schools or educational programming (Sandford 2009:2). When focusing on the inclusion of autistic learners in general education settings, it is important to consider their individual needs. Although many autistic individuals also have an intellectual disability, the two disorders are not the same, and it is important to understand the unique characteristics of autism in order to develop effective intervention strategies (Mesibov, *et al.* 2012:101).The use of effective teaching methods for autistic learners can have a measurable positive impact on family and teacher stress (National Research Council 2001:34).

Since people with autism differ dramatically from each other on a large number of variables (e.g. age, intelligence, language skills, social skills and interests, rigidity, organizational skills, special interests) it is important to incorporate assessment of these and other factors into individualized interventions. There is no "one size fits all" approach. It is hard to make any generalizations because of the uniqueness of autistic learners (NZMOE 2000:3).

2.9   CONCLUSION

Secondary schools have been found to make it difficult for the proper implementation of TEACCH, especially transition times, and having to deal with different teachers in different settings in a single day. This chapter provided a review of literature on the nature of autism and the age of onset and aetiology of autism. It highlighted how complex the education of autistic learners is. It also revealed the identification and assessment of autistic learners, as well as legislation and policies for autistic learners in different countries. Programs regarding the teaching of autistic learners, opinions of different educators on the implementation of TEACCH, autism in inclusive education, communication skills development which autistic learners and best practices, have also been reviewed.

Autistic learners need much support (especially teacher aide support) to become organized. Cooperation and coordination among those working with autistic learners is regarded as very important for effective implementation of TEACCH or any other intervention program. It was established that teachers need training in order to work with autistic learners competently.

CHAPTER 3
RESEARCH DESIGN

3.1 INTRODUCTION

This chapter provides a brief theoretical overview of the research methods and the research design used in the study. This includes the sampling, data collection, data analysis, ethics and validity of the research. As outlined in the previous chapters, the aim of this research study was to add to existing literature on the use and effectiveness of TEACCH in inclusive secondary schools. Information gathered from the literature study was used as a basis to answer the critical question "How effective is the TEACCH model used to educate autistic learners in an Auckland inclusive secondary school?" A mixed method approach was used in order to achieve this aim. As mentioned in Chapter 1, most autistic learners lack the ability to express themselves adequately through language. If speech is present, they display the inability to initiate and sustain conversation. In some cases, there is no spoken language, and they make no attempt to communicate in other ways. It has been highlighted that the purpose of TEACCH is to provide structure for autistic learners. The effective employment of TEACCH in an inclusive classroom presents challenges to the teachers who are responsible for the implementation of TEACCH. This research will help establish how the parents and secondary school teachers of autistic learners view the effectiveness of the TEACCH model. The research design will also highlight how teachers' opinions and experts' guidelines differ.

3.2 RESEARCH PARADIGM

A research paradigm is an all-encompassing belief system of interrelated practice and thinking that guide the researcher. This study employed both qualitative and quantitative research methods. Qualitative research is based on the interpretive/constructivist theories in which researchers use systematic procedures, but maintain that there are several socially constructed realities (McMillan& Schumacher 2010:6). Researchers who favour the quantitative design, aim to establish relationships between measurable attributes, and to provide universal context-free generalizations.

The qualitative approach helped to detect emerging patterns through careful recording and analysis of the research topic. When it is applied to any specific study, qualitative research design is unstructured and generally flexible (Wiersma & Jurs 2005:201). The flexibility of qualitative research was appreciated by the researcher when she realized that Section B of the questionnaire needed to be slightly modified because some of the teachers were not comfortable answering questions about TEACCH. The researcher was the key instrument who collected data by various means of data collection. As the

primary instrument in the research, the researcher was flexible and adapted and responded to problems and changes that occurred during the study.

The researcher purposefully focused on the meaning that the participants held of the issue and not on the subjective meaning held by the researcher herself, so that the validity and reliability of the research would not be brought into question (Ary, Jacobs, Razavieh & Sorensen 2006:449 & 453). This was because qualitative research regards truth as a subjective reality that is experienced differently by each individual. The study attempted to make sense of a social phenomenon of autistic learners in an inclusive situation.

3.3   RESEARCH DESIGN

In this investigation, the researcher designed the study around an established theory (TEACCH). Researchers can learn much from this case and the details that were provided suggest research questions that can be investigated in future studies.

For the purpose of this study, a literature study was undertaken, interviews were conducted and questionnaires were distributed. The purpose of the interviews was to capture the interviewee's exact words, and in order to achieve this, the interviews were recorded mechanically. Questionnaires served the purpose of gathering information from as many informants as possible, and of obtaining responses that might not have been forthcoming in the verbal interviews.

The data collection methods for this study included interviews (see Appendix CI for principal's interview schedule, and Appendix C2 for that of the psychologist), questionnaires (Appendix D1for teachers; Appendix D2 for outreach teachers; Appendix E1 for parents), and artefacts.

3.3.1   Literature study

A literature review enabled the researcher to show that she was familiar with the findings of previous studies and to establish links between existing knowledge of the topic under study (Fraenkel & Wallen 2009:620; McMillan & Schumacher 2010:73). The purpose of the literature study in this research was to weigh the information in the light of the researcher's own study and situation. The literature review provided this researcher with information about methodology that could be incorporated into the new study. Ideas obtained from the literature review strengthened the overall credibility of the new study.

3.3.2   Questionnaires

Questionnaires were used since a survey is conducted. By using this quantitative approach the researcher administered questionnaires to a sample or people to describe the attitudes, opinions, behaviour, or characteristics of the population (Wiersma & Jurs 2005:165). Questionnaires were an economic and efficient way of collecting information from a large number of respondents. Gall *et al.* (2007:228) state that the respondents typically control the data collection process, as they can fill out the questionnaire at their convenience. The researcher used questionnaires since they are more objective than interviews, because there was no interviewer bias.

In the present research it would have been time consuming as well as costly to physically interview every parent and teacher involved in the project. In addition, the use of questionnaires was less intrusive than telephone or face-to-face interviews would have been, and the respondents were not interrupted by the research instrument. The questionnaires were mailed to the school principal so that they could be passed on to the respondents, and then returned to the researcher. After the secondary school teachers had completed the questionnaires, they put them into a collection box. The school secretary scanned and e-mailed them to the researcher to avoid long delays before the surveys were returned and statistical analysis could begin.

The results of the questionnaires were quantified quickly and easily analysed through the use of a software package. The use of questionnaires helped to add to the validity and reliability of the research, since the responses were consistent.

A potential problem regarding subjectivity with the questionnaires was that the researcher made her own decisions and assumptions concerning what was and was not important. As a result, she might have missed some important aspects. Also, there was no way to tell how truthful the respondents had been. The respondents might not have been motivated to give accurate answers (Creswell 2012:391; Wiersma & Jurs 2005:180). In fact - they might have been motivated to give answers that would present themselves in a favourable light.

3.3.3   Qualitative population sampling

Qualitative research focuses on non-statistical methods and small samples that are often drawn up through purposive selection (De Vos, Strydom, Fouché & Delport 2005:74). In this case study, purposeful sampling was used to choose the school as well as the participants. The participants chosen were those who worked directly with autistic learners. Purposeful sampling allowed for the selection of the most information-rich people who experienced, knew about, or had insights into the research topic. There was

no clear answer to what constituted an adequate size of a sample. A Small but focused sample was used. The participants comprised five STOS, ten teachers who worked directly with the autistic learners, three parents of autistic children, the secondary school principal, and the school psychologist based at the same school with STOS. The psychologist was chosen mainly to determine what other external services the secondary school could receive to help the autistic learners. Details of how the participants were chosen are provided in Chapter 1 (1.7.2).

The small sample did not constitute a problem, since this study was contextual. Data gathered from participants in this study helped to extend the information gathered in previous research, and the accrued data offered substantial depth of information on the phenomenon.

3.3.4   Quantitative sampling

An element of quota sampling was used as the subjects were selected based on a specific proportion, which was working with autistic learners, just as in purposeful sampling. Quota sampling allowed the researcher to observe relationships between specialist outreach teachers and the secondary school teachers.

3.3.5   Data collection and triangulation

Data was collected through questionnaires, interviews and artefacts. As stated in section 1.7.3, questionnaires were distributed to the outreach teachers, the secondary school teachers, as well as the parents of autistic learners.

Questionnaires were used to collect data quantitatively since they had to be analysed statistically. These were used to describe the attitudes, opinions, behaviour, or characteristics of the population.

In order to collect data qualitatively teachers were asked to attach samples of visuals of schedules they were using in the implementation of TEACCH. The principal and the school psychologist were interviewed by telephone. Each interview was recorded mechanically and transcribed. Tape recording of interviews minimised interference of the flow of conversation when notes are taken in an interview (Marshall & Rossman 2006:152). The interviews helped yield substantial data in a short time. In addition, interviewing approach allowed the interviewer not only to gather hard, factual data, but also to collect emotional data.

Ethical problems can surface if it is difficult to disguise a participant's identity. This could lead to bias in data collection, which could then influence results more than in different designs (Bogdan & Biklen

2007:67). In order to avoid this, pseudonyms were used for the psychologist and principal. As there was only one researcher, she had to guard against possible bias in the collection and analysis of the data.

3.3.6   Data analysis

When analysing data, the researcher was true to the text, in order to allow readers to understand the meaning and qualitative distinctions of the text (Dreyfus 1991 in Benner 1994:100). The data was scanned to identify recurring themes (activities, ideas, thoughts, feelings and other actions) of the phenomenon, and relationships among the categories were identified. The researcher generated codes from the data. The researcher catalogued the emerging codes and subsequently looked for themes in the codes as the analysis progressed. This included moving from specific data to identifying general categories and patterns. Inductive analysis lead the researcher to move to more abstract levels of data analysis, and she constantly double-checked and refined her analysis and interpretation. The researcher examined assumptions about what would belong in various categories, rather than having these assumptions determine the research design and outcome (Bogdan & Biklen 2007:68). The obtained data was reduced to a definite theme or pattern.

Quantitative data collected through questionnaires were professionally computer analysed. While the case study relied on qualitative approaches based on interviews and reviews of literature, quantitative techniques provided a numerical analysis of the gathered data. Since descriptive design uses surveys to collect data and hence have basic statistical procedures (Elliott & Timulak 2005:149), these characteristics were used to describe the use of TEACCH in an inclusive secondary school as it was at the time of the research. Thus, quantitative analysis supplemented the researcher's interpretive analysis of interviews and other data. In addition to the quantitative and qualitative data collection methods described thus far, a word table, devised according to a uniform framework, was used to provide the data gathered from individual respondents as suggested by (Creswell 2007:163). In this study, the researcher attempted to understand an educational problem based on a complex, holistic picture. Words were used to report detailed views of participants. In this way the qualitative findings provided support to enhance understanding of the quantitative findings.

After the research report was issued, the readers as well as the participants were given so that they could give views about the report, offering yet other opinions about the study.

3.3.7   Trustworthiness

As in a qualitative research, in a mixed method research the honesty, believability, expertise, and integrity of the researcher are emphasized (Fraenkel & Wallen 2006:164). The adoption of appropriate, well-

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recognized research methods promoted trustworthiness for this research. The internal consistency method of estimating reliability of these methods involved comparing responses to different sets of items that were part of the research instruments. The results from the data collected quantitatively and qualitatively indicated the same result, hence there was triangulation, and thus the findings can be regarded as being credible. Triangulation enhanced *"confidence in research data, creating innovative ways of understanding a phenomenon, revealing unique findings, challenging or integrating theories, and providing a clearer understanding of the problem"* (Thurmond, 2001:254). These benefits largely resulted from using the strengths of each approach.

In order to address the dependability of the data collected more directly, this researcher examined previous research to frame her own findings. The processes within the study were reported in detail, thereby enabling a future researcher to repeat the work, if not necessarily to gain the same results.

The participants' words, actions and responses were examined for the patterns of meaning that emerged from the data. These were presented in the participants' own words. This researcher's task was to find patterns in the collected data, and to present those patterns for others to inspect, while at the same time ensuring that the construction of the world as the participants initially experienced it was accurately reported. The explanation of the phenomenon that unfolded includes a description of the mechanisms that could account for certain observations. In addition, the relationship between the results and the literature reviewed were discussed (Swann & Pratt 2003:191) and the data interpreted. The information that was gathered through qualitative methods is not presented in numerical form, and thus needed careful analysis to be trustworthy.

Proving that the results of qualitative research are credible or believable is taken from the participants' viewpoint. Since the purpose of a research that incorporates qualitative approach is to describe or understand the phenomena of interest from the participant's perception of a situation, the participants in this research were the only people who could rightfully judge the believability of the results. The researcher described the changes that occurred during the study and explained how they were addressed in context.

3.3.8   Validity

Validity rested on data collection and analysis techniques. In order to enhance the validity of this research the researcher used multi-method strategies which involved triangulation. Triangulation was used to indicate that more than one method, multiple researchers, and perspectives were used in the study with a view to cross examine results. Different sources, situations and methods were compared to see if the same pattern kept recurring. In addition participants' language and verbatim accounts were employed, to

obtain literal statements of participants and quotations from documents (Fraenkel & Wallen 2009:453). A tape recorder was used to ensure accurate recording of interviews. Low-inference descriptions from interview elaborations that were concrete and precise were used to identify patterns in the data. Participants were asked to review and modify the researcher's synthesis of all interviews for accuracy of representation.

Negative cases and/or discrepant data were taken into account. Negative cases contradict emerging patterns and hence the researcher actively searched for negative cases that might have modified patterns found in the data.

Data triangulation involved using different *sources* of information in order to increase the validity and credibility of a study. Since the findings gained from each of the methods and sources were the same, then validity was established.

This researcher collected quantitative (questionnaire) and qualitative (interviews) data in order to compare findings. Even though this research is of limited scope, the researcher developed three sets of questionnaires and two sets of interviews. This was done because the researcher believed that multiple views of the problem would emerge through such triangulation (Creswell 2009:176). She believed, too, that different strategies would yield different insights about the topic being investigated, and would increase the credibility of the findings.

3.3.9   Ethics in Research

Appendix A indicates that the researcher was granted ethical clearance from UNISA to carry out this research. The researcher was practically responsible for protecting the rights and welfare of the participants in the study (Best & Kahn 2006:309; Creswell 2012:392).

Since a questionnaires were to be used in this research the issue of informed consent was addressed by obtaining informed consent from the principals (see Appendix B), as well as from everyone else who completed one of the questionnaires (see Appendix D for teachers; Appendix E for parents), or for those who were interviewed (see Appendix C). All names presented were pseudonyms used to protect the identity of participants.

The researcher ensured that the study would not marginalize participants in any way. Since data was analysed both quantitatively and qualitatively, the researcher followed the suggestions of Creswell (2012:553) not to minimize the importance of a sample because of its size.

The researcher adhered to NZMOE copyright rules (see Appendix F) so that she could use some documents as appendices.

3.4   CONCLUSION

This chapter presented the research design followed. This included explanations of the research paradigm, namely qualitative research; characteristics of qualitative research, the descriptive nature of qualitative research and interpretive inquiry. Other areas that were highlighted included the quantitative paradigm.

Qualitative research, case studies, underpinning philosophies, sampling, data collection, questionnaires, interviews, artefacts, data analysis, and ethics were also discussed. In this research, the aim was to investigate how an inclusive Auckland secondary school that had students who used to receive outreach services was ensuring that the opportunities for learning offered to autistic learners were increased through the employment of TEACCH. As revealed in the literature review, numerous researchers have written about the effectiveness of TEACCH. The questions that needed to be asked were: Why are some schools still not keen on enrolling autistic learners when there is abundant information regarding the education of these learners? What difference will this study bring about? What contribution can this study make in order to improve the interventions that the school was using to help autistic learners?

CHAPTER 4
PRESENTATION AND ANALYSIS OF THE FINDINGS

4.1   INTRODUCTION

In this chapter the researcher presents the results for the main research question, namely to determine how effectively the TEACCH model is used to educate autistic learners in an Auckland inclusive secondary school. In Chapter 2 relevant literature was reviewed and the findings were qualitatively presented in line with the first sub-aim, which was to determine how autistic learners should be taught effectively against the inclusive background. In this chapter, sub-questions two and three, i.e. the opinions of teachers and parents of the TEACCH program, will be presented. The final sub-question on the possible differences between opinions in the Auckland school and the literature will be discussed and finally the researcher will discuss the effectiveness of the use of the TEACCH program in a school in Auckland.

The presentation of results will take the following order:

Quantitative results
Responses of:

- Ten teachers (questionnaire responses);
- Five specialist teacher outreach services (STOS) (questionnaire responses);
- Three parents (questionnaire responses).

Qualitative results
Responses of:

- One principal (interview);
- One psychologist (interview).

The secondary school teachers were asked to complete the questionnaires. Ten teachers responded. Out of the five parents whose children were suspected of being autistic, only three responded to the survey. All the outreach teachers responded to the survey, which is a response of 100%.

In the next section the responses of the secondary school teachers' will be discussed first, followed by the responses of STOS, parents and finally the responses of the principal and the psychologist given during the interviews. The data from the teachers will be analysed quantitatively, while the parents' responses

will be analysed descriptively since there were too few for quantitative analysis. The interviews with the principal and the psychologist provide information for qualitative analysis because their responses to questions are recorded verbatim as literal statements of participants (see 3.3.8).

4.2   SUMMARY OF SECONDARY SCHOOL TEACHERS

The questionnaires for the secondary school teachers had three sections:

- Biographical and demographic data;
- Questions related to teaching autistic learners and using TEACCH;
- Autistic learners and intervention programs/TEACCH.

The analysis in Table 4.2.1 gives some of the biographical and demographical data for the secondary school teachers.

4.2.1   Demographic data

Table 4.1: General description of the teachers group (n=10).

Characteristics	Female (n=6)	%	Male (n=4)	%
Age	45 and over	20	45 and over	20
	39-44 year	20	39-44	10
	33-38 years	10		
	27-33 years	10	27-32	10
Formal training for teaching learners with autism	No (5) No response	50 10	No	40
Learners with autism attending (average)	1.66		1.75	

The sample group from the secondary school comprised six female teachers and four males, with ages ranging from over 27 to over 45. Of interest is that each teacher had at least one autistic learner, but 90% had had formal training for teaching autistic learners; with 10% not responding to the question. Lack of formal training in teaching autistic learners can lead to a lack of confidence on the teacher's part. This can lead to a negative attitude towards the autistic learner. The level of teacher training is significantly correlated with the level of confidence in which teachers can use techniques to include all learners, also autistic learners, in the process of learning together (see 1.1).

The level of training, as well as experience in the education of autistic learners has a great impact on teachers' performance. Every learner deserves to get the best from a teacher irrespective of his/her level of training. It is important to look at the overall experiences the teachers had in order for them to teach autistic learners competently.

4.2.2 Secondary school teachers' experience

Graph 4.1: Years of teaching autistic learners
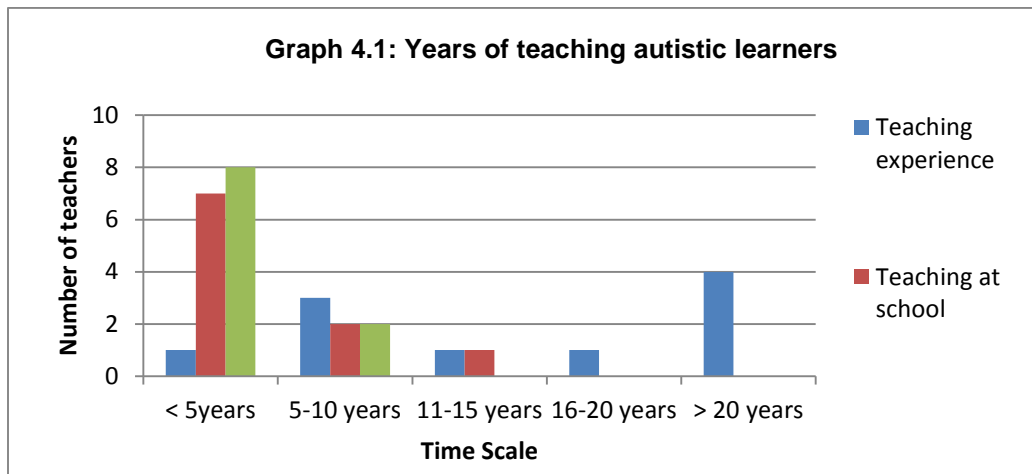
Graph 4.1 is an overall reflection of the secondary school teachers' teaching experience, years in the Auckland secondary school and the experience of teaching learners with disabilities. It is clear that 70% of the teachers had been in the secondary school for fewer than five years, and eight teachers had been teaching learners who experienced barriers to learning for fewer than five years. In the researcher's experience she has found that if a teacher is new to a school it might take a while for the teacher to get settled and become accustomed to procedures in that particular school. The situation can be very difficult, especially when faced with autistic learners who present challenges. The issue of high personnel turnover is a barrier to effective continuation of the TEACCH program or any other intervention program (see 2.6.1). Most of the teachers had been in the school for fewer than five years. Some school atmospheres make it difficult for staff to stay long. The school administrators could examine the way they manage their schools. On the other hand, there are other issues like teachers leaving the profession, or emigrating that are beyond the school governance control.

The next section will discuss how prepared the teachers were to educate autistic learners.

4.2.3   Preparedness in educating autistic learners

Graph 4.2: Teacher's preparedness (%) in educating autistic learners

- Moderately qualify: 30
- Very experienced: 10
- Not qualified: 60
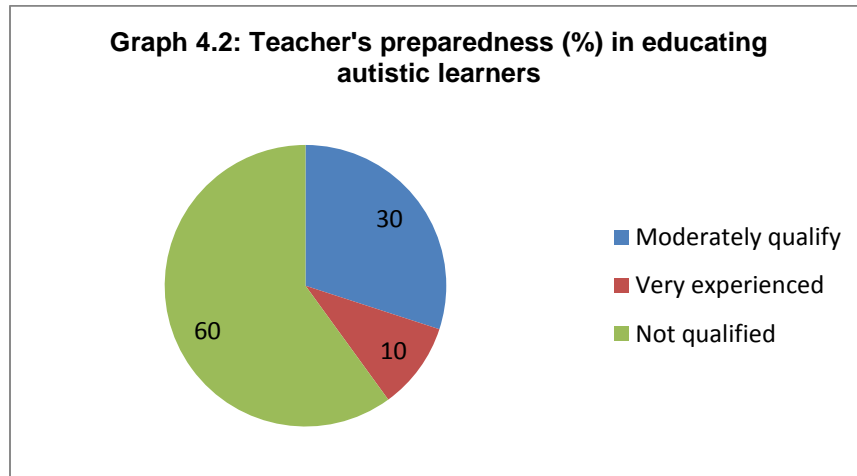
As Graph 4.2 reflects, it is interesting to note that 60% of the teachers were not qualified or not prepared at all to teach autistic learners. Only 10% showed that they were very experienced in teaching autistic learners, 30% were moderately qualified, while the greater percentage were not qualified or prepared at all.

One of the greatest challenges for teachers in inclusive education is how to provide instruction to autistic learners that is effective, inclusive, appropriate and acceptable. Literature and corroboration by empirical research has revealed that most teachers are not adequately trained to teach autistic learners (see 2.7.2). This makes it hard to implement the TEACCH program. Teachers must be familiar with theory and research concerning best practice in the teaching of autistic learners so that they can set appropriate goals competently, and be familiar with the range of possible outcomes (see 2.7). Without adequate knowledge or experience in using TEACCH, teaching autistic learners can be highly stressful.

The lack of professional development, or specific training in educating autistic learners, is of great concern. In New Zealand all qualified teachers are required to participate in ongoing professional development programs to retain their registration, but there is no requirement to keep learning about special education, particularly autism, despite the rising challenges in the field (2.7.2). If the teachers do not have special education qualifications, what the level of qualification do secondary school teachers hold?

4.2.4 Qualifications

Graph 4.3: Educational qualification (%) of teachers attending autistic learners
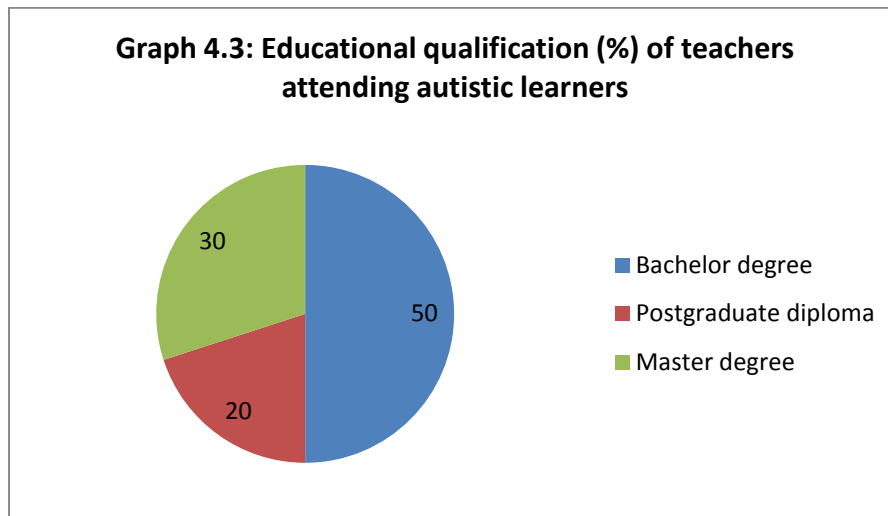
Graph 4.3 shows that 50% of the teachers had bachelors' degrees only, 20% had post graduate diplomas and 30% had masters' degrees. The previous discussion indicated that, despite having high qualifications, none of the teachers had a special education qualification, in other words, appropriate qualification for the teaching of autistic learners.

As reflected in 2.7.1, the reasons for not being able to hire experienced specialized teachers include money, space, planning time and small classes. Incompetence may result from a combination of lack of the necessary skills and having to deal with a large class that has an autistic learner with behavioural and emotional challenges.

It can be observed that the teachers who teach autistic learners in the secondary school lack the necessary qualifications to teach autistic learners. In addition most of them do not have the experience either, and have not been in a school for a long time. The level of training and experience influences the teacher's confidence and performance in teaching autistic learners. Teachers in inclusive settings need practical exposure to autism. Above all, they need extensive training in dealing with challenging behaviour exhibited by autistic learners.

4.3   BEST PRACTICES FOR TEACHING AUTISTIC LEARNERS IN A MAINSTREAM ENVIRONMENT

Despite the lack of the necessary qualifications or experience of available teachers, autistic learners have to be educated in some ways. The analysis of the data now moves to the employment of TEACCH in the secondary school.

4.3.1   Familiarity with TEACCH

Graph 4.4: Teachers' familiarity with TEACCH programme
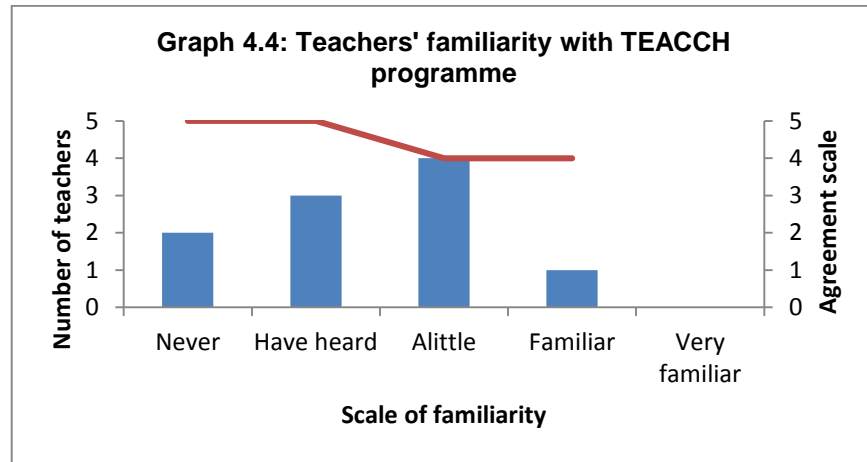
The reflection in Graph 4.4 is that 10% of the teachers were familiar with TEACCH, 40% were a little familiar, 30% had heard of TEACCH and 20% had never heard of it. It is imperative that teachers should receive special training in the use of TEACCH (see 2.6.1). Little knowledge or lack of training hinders the effective delivery of the curriculum to autistic learners. Teachers need to know and understand that autistic learners are "*visual learners living in a very auditory world*" (see 2.6.1). Teachers need to be able to understand learners and to make their own plans for the adjustment of the curriculum.

The teachers' knowledge, or the lack of knowledge, will by necessity affect their confidence and skill to teach autistic learners, as is reflected in the following graph.

4.3.2   Confidence in teaching autistic learners.

Graph 4.5: Teachers' confidence in teaching autistic learners
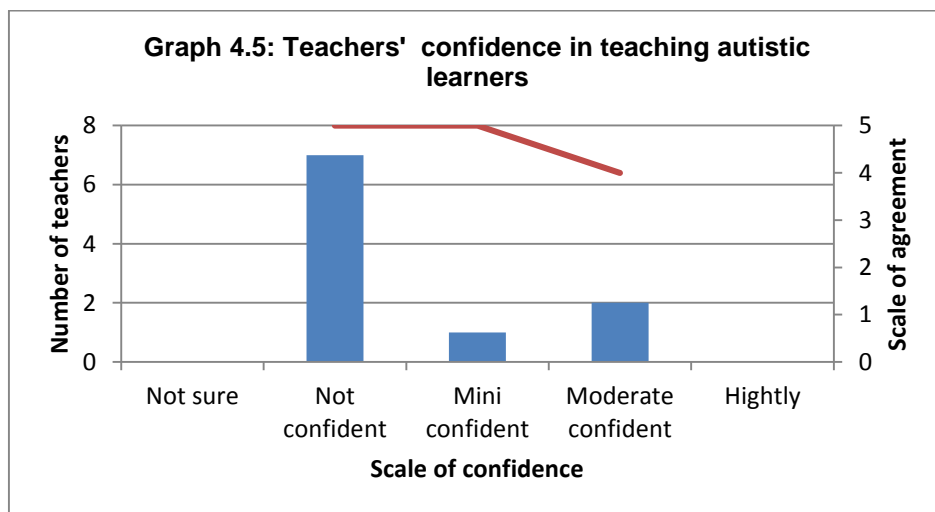
As evident in Graph 4.5, 70% of the teachers were not confident, 20% were moderately confident and 10% were neutral where confidence in teaching autistic learners was concerned. Taking these results into account, it is clear that appropriate qualifications and professional development programs could be valuable to provide the necessary confidence. Teachers who have adequate knowledge and experience, as well as the necessary equipment to teach autistic learners, find it easier to move past the fears that some other teachers experience when faced with educating an autistic learner (see 2.3). In the next section, it is interesting to find out what the teachers used when they did not use the TEACCH program.

4.3.3   What I would use for teaching autistic learners
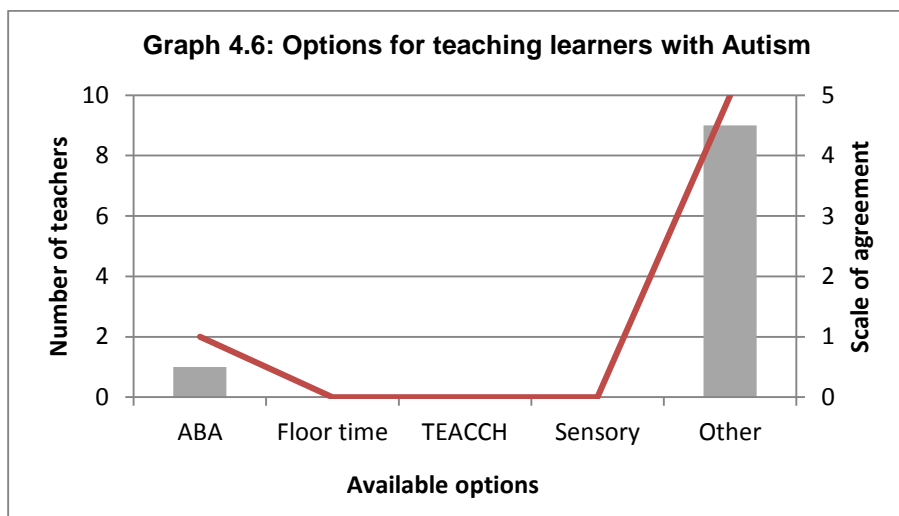
Graph 4.6 shows that 10% of the teachers preferred to use applied behaviour analysis (ABA) (see 2.5.2), while 90% used other options which did not include TEACCH. When a sample of the questionnaire was sent to the secondary school, some of the teachers asked for it to be changed so that it would not focus on TEACCH, but on intervention programs for autistic learners in general. None of the teachers indicated that they used TEACCH, including those who had indicated that they were familiar with TEACCH and a few others who had heard about it. Although the teachers did not mention TEACCH as an option, the artefacts (visuals) that were attached by one respondent showed that TEACCH techniques were used in the school (see Figures 4.1- 4.3). This was evidence enough that TEACCH is being used for schedules and behaviour management. The only problem was that it seemed as if the teachers were not familiar with TEACCH.

Experience has shown that teachers refer to TEACCH as visuals or visual program. The principal explained the strategies, services, and programs provided at the secondary school for autistic learners. He said, "*The programs that are given to the students are significantly modified so that the students have got very specific and very clear instructions. In terms of the complexity of the tasks they are reduced so*

that the students have got very very clear one thing at a time to do. As far as strategies are concerned the teachers use a number of visual ways to present information to the boys" (see Appendix C1)*.*

The implementation of TEACCH can be overwhelming for teachers, because they have many tasks that need their attention in the working day. The autistic learner's day is filled with visual aids, which, according to literature may become the focus of the education process and may take much of the time of those implementing the program (see 2.5.1).

If an intervention program requires much involvement teachers can be tempted to choose a program that is easy to implement. This leads to teachers adapting some programs if they do not fit in well with their class plan and this consequently affects the effectiveness of the program (see 2.7.2).
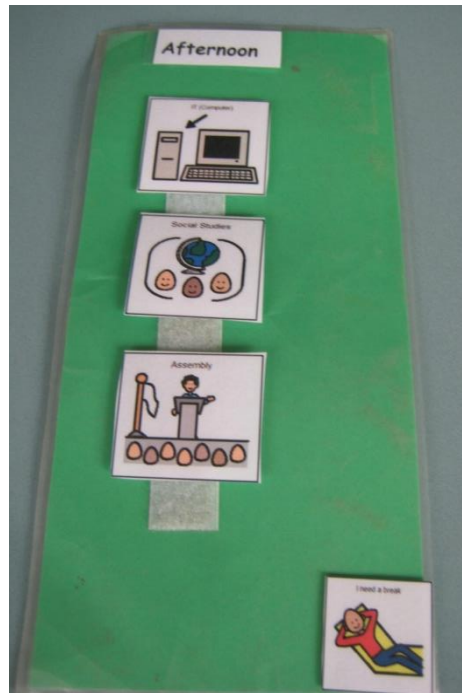
Figure 4.1: Visual schedule

Figure 4.1 is a visual schedule which shows what the learner will be doing in the afternoon. The card at the bottom is for the learner to show to an adult should the learner feel overwhelmed and needs a break.
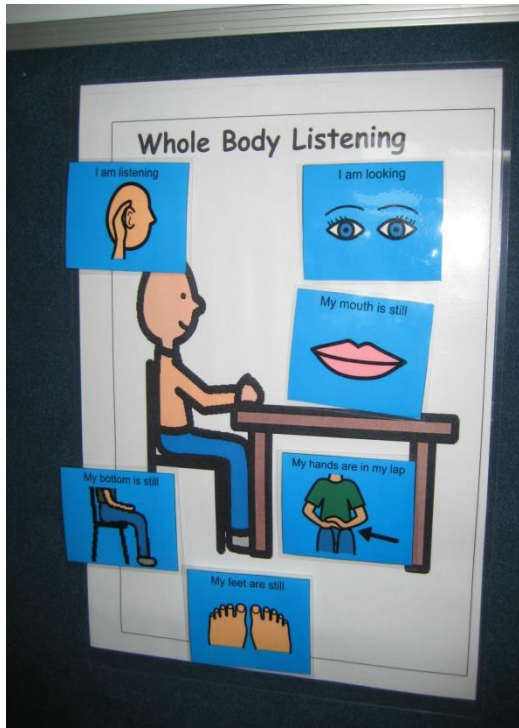
Figure 4.2: Listening strategies

Figure 4.3: Self-regulation charts

Figure 4.4 Talking voices in particular environments

Autistic learners have to be taught how to present themselves in certain situations so that they can make educational gains. Figure 4.2 shows how the learner should conduct themselves when listening. Figure 4.3 represents emotional regulation zones. If a learner is a yellow or red zone, they might need to perform calming down strategies. Figure 4.4 is further evidence of how autistic learners should speak in particular environments. Teachers have strong feelings regarding the inclusion of autistic learners.

The following section focuses on the teachers' opinions of the inclusion of autistic learners in their classrooms.

4.3.4 TEACCH model and inclusion of autistic learners

Graph 4.7: Teachers' opinion regarding the inclusion of autistic learners
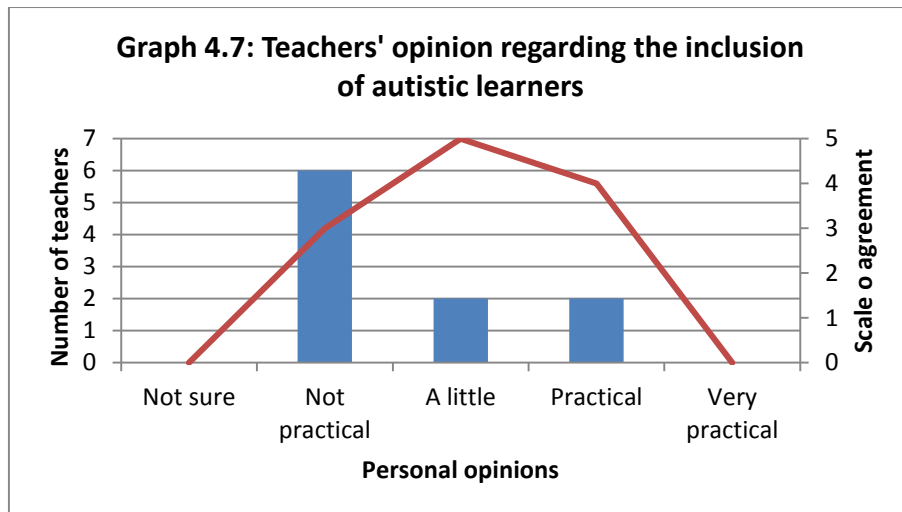
Graph 4.7 indicates that 60% of the teachers felt that the inclusion of autistic learners in a general classroom was not practical. 20% of the teachers said that it was practical and the other 20% said that it was a little practical. *"Autistic individuals appear to have 'over-focused' attention, responding only to a subset of environmental cues during learning situations, and they take longer to disengage and move attention than the average people"* (see 2.7.2). This can be overwhelming for the secondary school teacher, who has to focus on giving individual support to over a hundred learners, with different needs and personalities, a day especially if he/she does not have adequate support.

The next section of the discussion focusses on whether the teachers worked with other members designated to serve learners who experienced barriers to learning.

4.3.5 Working with other members

Graph 4.8: Frequency of working with other members designated to autistic learners

Y-axis (left): Number of teachers
Y-axis (right): Scale of agreement
X-axis: Scale of frequency (Never, Rarely, When a need, Often, Everyday)
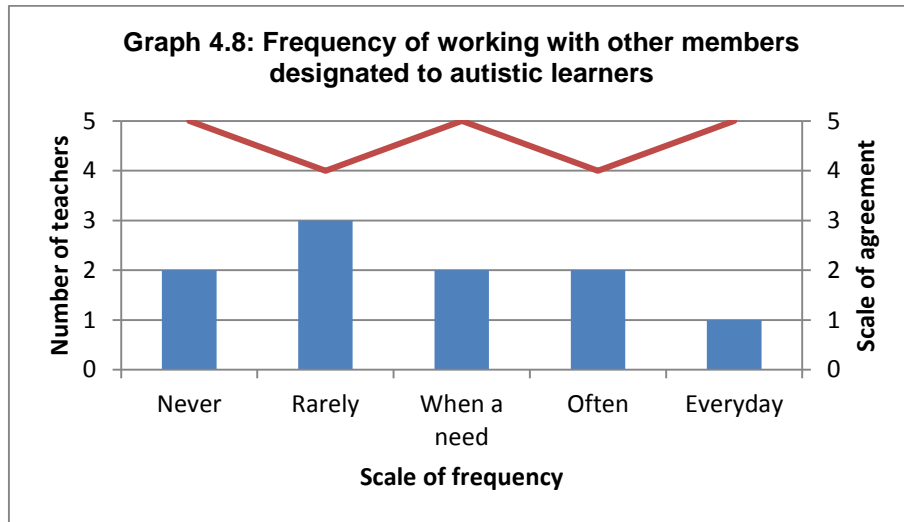
Graph 4.8 indicates that there were diverse views about whether the teachers worked with other staff members designated to help autistic learners. It can be concluded that since the teacher aides did not work full days, there may have been some teachers whose timetables fell outside the teacher aide hours (see 2.7.2). Also, the situation could have been worse because there were two learners at the school who were suspected of being autistic (see principal's interview Appendix C1). It could be that these learners were of great concern to the teachers, since they did not get teacher aide time.

The discussion turns to what could be the most difficult part of teaching autistic learners.

4.3.6 Most difficult part of teaching autistic learners

Graph 4.9: Most difficult part of teaching austistic learners

Y-axis (left): Number of teachers
Y-axis (right): Scale of agreement
X-axis: Difficult part (Their behaviour, Inability to…, Lack of teacher…, Learner's Inabilty…, Time, Lack of family…, Lack of members…, Lack of continuity)
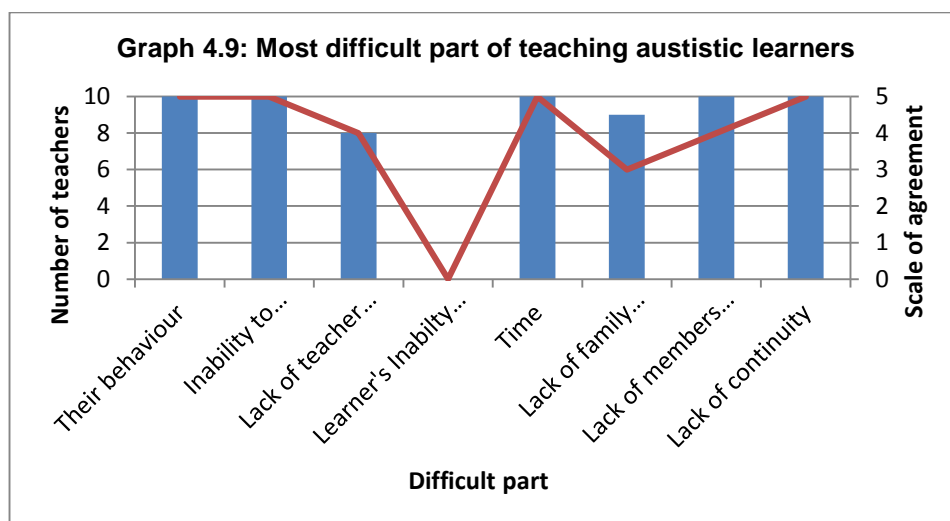
In Graph 4.9 100% indicated the following as the most difficult aspects of teaching autistic learners:

- The autistic learners' behaviour;
- Their inability to communicate effectively;
- The time involved in implementing programs for them;
- Lack of support from other team members;
- Lack of continuity or use by other teachers.

The reaction to this question actually indicated how difficult the respondents experienced the teaching of autistic learners in an inclusive classroom by the variety of aspects that they found extremely difficult. In Graph 4.9 eight teachers indicated lack of teacher aide support and nine indicated lack of support from family, as well. The involvement of parents promotes transfer of learning from the classroom to the home (see 2.6.2). It is noted that some parents cannot be trained either because of their own psychological problems and others because they are working single parents. Co-ordination provides an opportunity for a collaborative team approach to the development, delivery and monitoring of a plan to support learners and their families (see 2.7.3). Such an approach is effective in that, if individual team members change over time, the set plan will be continued. The learner and the family will always have someone they know in the team.

Although none of the teachers mentioned the autistic learners' inability to read visuals, it is documented that in order to use visuals the learner must have visual skills for observing and remembering visual patterns, and the skill to use them when needed (see 2.5.1). The extent to which autistic learners have these skills is quite variable. Despite this, teachers attributed success in implementing TEACCH to the "hands on", one-to-one help provided by paraprofessionals (see 2.7.2).

Difficulties encountered in the education of autistic learners are innumerable. The most difficult part of implementing intervention programs is discussed below.

4.3.7   Most difficult part of implementing programs

Graph 4.10: Difficult part of implementing intervention programmes
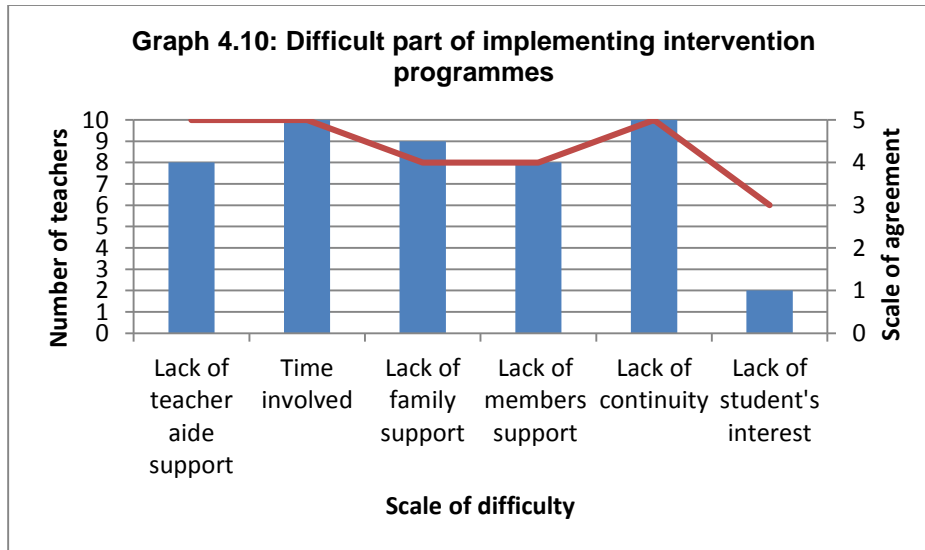
The most difficult part of implementing other programs that help autistic learners is presented in Graph 4.10. The results were similar to those shown in Graph 9, except that the number who indicated lack of interest from the students was lower.

The implementation of programs goes beyond the school. Bronfenbrenner's model and Vygotsky's theory suggest that in learning there are social structures that include *"family, social, political, - - - and organizations representing social structure"* (see 2.3.2). All these play a role directly or indirectly in the implementation of programs. The autistic learner's understanding of expectations, requests, directions, peers, and language of the classroom environment are all key factors that contribute towards the success of TEACCH in an inclusive setting (see 2.5.1). After all these deliberations, the discussion now focuses on the autistic adolescent.

4.3.8   Adolescence and intervention

Graph 4.11: Timing for adolescence intervention
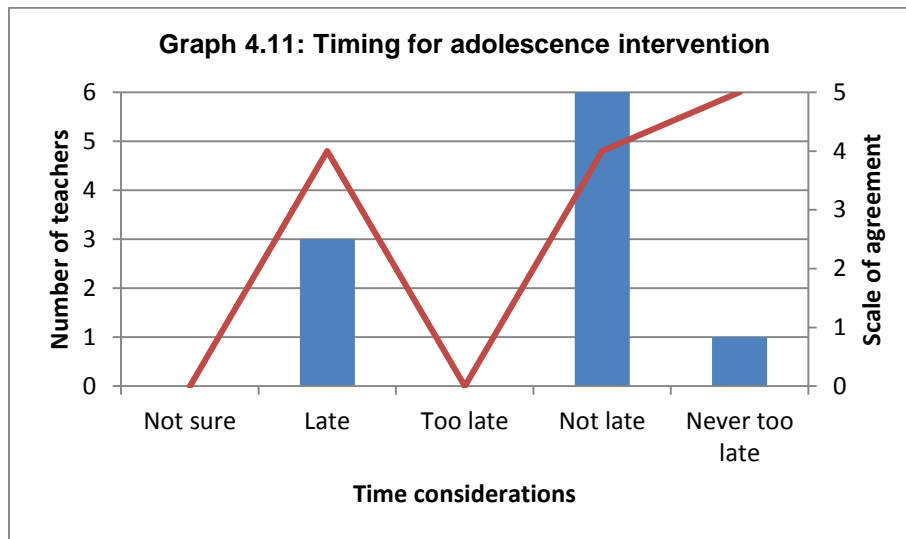
Graph 4.11 shows the teachers' opinions of whether adolescence is too late for intervention. 60% agreed that adolescence is not too late to start intervention, 30% said that it was too late and 10% said that it was never too late. Once autistic adolescents reach secondary school the risk of very low school performance is increased if their problems are not understood and addressed (see 2.8.1.1). This is probably because of hormonal changes and the increased demands of school. Generally speaking, autistic teenagers, unlike typical teenagers, lack either the desire or need to interact with others (see 2.8.1.2). The ordinary adolescent often questions and analyses extensively, while the autistic adolescent's thinking is rigid. This can result in intervention being offered too late. However, the cognitive functioning of the autistic learner is of significance; it is better to commence intervention late than not at all.

There are other challenges that are encountered in implementing programs for autistic learners. *"Learned behaviours, over many years, may take longer to remediate. . . . Also, teens have difficulty in self-regulating their emotions* (Psychologist) (see Appendix C2 for full interview). Once they reach middle and high school, autistic adolescents are at a greater risk of school failure if their problems are not understood and addressed (see 2.8.1.1).

There are challenges that must be met when trying to implement programs for autistic adolescents. These are discussed below.

4.3.9   Challenges met in implementing programs for autistic adolescents

Graph 4.12: Challenges when trying to implement programmes for autistic adolescents
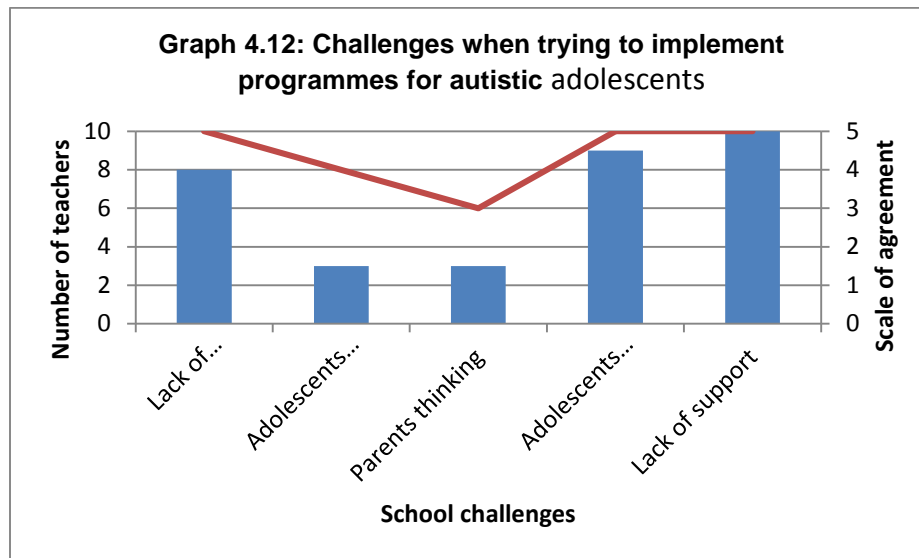
Challenges when setting or trying to implement programs for autistic learners expressed by teachers are represented in Graph 4.12. These were:

- Eight teachers reported lack of understanding by the adolescents;
- Three teachers reported adolescents becoming ashamed of undergoing some programs;
- Three teachers reported parents thinking that their child does not need the program;
- Nine teachers reported other adolescents' attitude towards the autistic adolescent;
- Ten teachers reported lack of support from other team members.

Co-ordination provides an opportunity for a collaborative team approach to the development, delivery and monitoring of a plan to support learners and their families (see 2.7.3). Everyone involved in the education of the autistic learner has to be committed for TEACCH to be effective. Problems could arise with those parents who have not come to terms with their child's disability and may be indifferent to all efforts at intervention.

Some evidence suggests that autistic learners may respond well to some programs, and may regulate challenging behaviours more successfully with adults with whom they have established rapport than with others (see 2.8). It would be commendable to capitalize on such events, but at the same time, care needs to be taken as autistic learners might become obsessive or too attached to the adult. What needs to be discussed is whether the skills the autistic learners gain through TEACCH will be of any use in later life.

4.3.10   Use of learnt skills in later life

Graph 4.13: Skills obtained through the intervention programme and application in daily life

Numbers of teachers (y-axis left, scale 0 to 10)
Scale of agreement (y-axis right, scale 0 to 5)
Skill application in daily life (x-axis: Never, Rarely, Not sure, Often, Everyday)
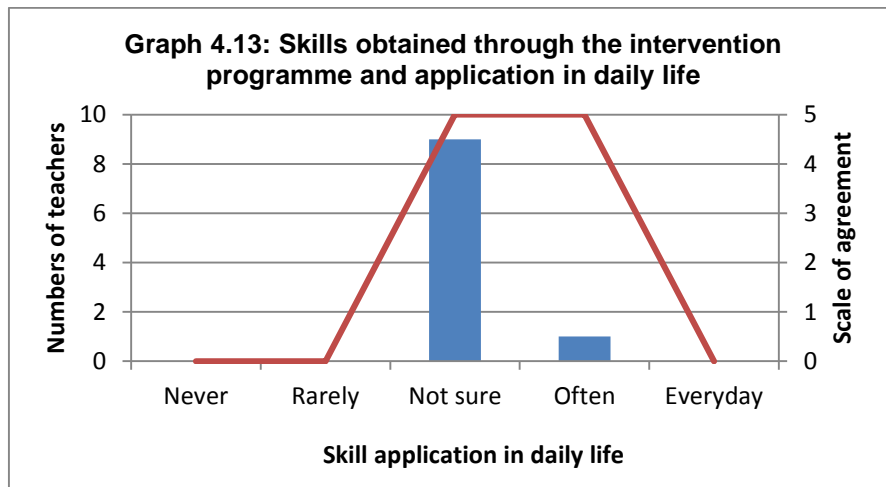
The reflection in Graph 4.13 is that 90% of the teachers were not sure whether skills obtained through the intervention program could be applied in daily life. Only 10% said that the skills would be used often. As autism is a lifelong disability teachers can be uncertain about the effectiveness of skills obtained through intervention later in the person's life. TEACCH is rated as having limited positive effect (see 2.5.1). TEACCH emphasizes independent work skills, but it does not address other areas of functioning, such as communication and maladaptive behaviour (see 2.5.1).

Visual support remains in place over time, but spoken instruction takes place in a discrete time period, and then vanishes, and may not be adequately processed and remembered (see 2.5.1). It is the dependency on visuals and others to make the visuals that causes the use of TEACCH in later life questionable. It is quite clear that autistic learners would not be able to make visuals for themselves, because, if they could, it would mean that they could function without visuals.

4.3.11   Section Summary

By taking part in the survey the teachers in the secondary schools gave their views on the implementation of TEACCH and its effectiveness. It can be concluded that the levels of training, expertise, knowledge and skills of the teachers were more important than the physical nature of the setting (see 2.5.1). Also, cooperation and co-ordination are important to overcome problems that are encountered for the effective implementation of TEACCH. When teams work together, there is continuity and transfer of learnt skills from classroom to different settings, especially the home.

4.4 SUMMARY OF QUESTIONNAIRES FOR OUTREACH TEACHERS

Five outreach teachers completed the questionnaire. The teachers' experiences as well as qualifications varied greatly, but they were all almost all in the same age group.

4.4.1 Biographical and demographic summary

Table 4.2: Biographical and demographic data for outreach teachers

Question							Total
1. Gender	5 Female	%		%		%	%
2. Age	39-44years	20	Over 45 4	80			100
3. How many years of teaching experience do you have?	5-10 years	20	16-20 years	20	More than 20	60	100
4. How long did you teach learners with disabilities before doing outreach services?	Less than 5 years	20	5-10 years	40	16-20 years	40	100
5. **How long have you been doing outreach services?**	Less than 5 years	100					100
6. Please indicate your highest teaching qualification?	Diploma	20	Post Graduate Diploma 3	60	Masters' Degree	20	100
7. How prepared do you feel you are to provide your services to learners with autism?	Very experienced	40	Both highly qualified and very experienced	60			100

Table 4.2 is a summary of the outreach teachers' demographic data. All participants were female. Their ages ranged from over 39 to over 45. Outreach service was relatively new at the time of the investigation; as a result all the teachers had less than five years' experience working in that capacity. Twenty per cent had either a diploma qualification or a masters' qualification, and 60% had post graduate diplomas. Forty per cent of the teachers showed that they were very experienced in providing services to autistic learners, and 60% were both highly qualified and very experienced. These are the kinds of specialist teachers needed to help in the Auckland secondary school to help teachers, not necessarily with their contact with the autistic learners - as this is what they mainly do - but to give ideas and suggest strategies that can help the autistic learners.

The qualifications and experience of the outreach teachers show that they were suitable and could be competent to teach autistic learners.

4.4.2   Number of learners with autism

Table 4.3: Outreach teachers' autistic learners

Categories					
Teachers	1st	2nd	3rd	4th	5th
Secondary autistic learners under program	0	0	0	0	0
Learners who have autism or who are suspected of having autism in each teacher's group	X (1)	-	X (2)	X (1)	X (1)

(): **Number of educators that agree with the responses.**

It is interesting to note that all five outreach teachers did not deal with autistic learners in secondary schools. Four of the teachers had autistic learners in the primary schools in which they worked. It would seem as if primary school teachers were getting more help than their secondary school counterparts. Most secondary school teachers find it hard to teach autistic learners. As reported in the literature study, the inability of many secondary schools to deliver high quality autism programs is an area of widespread concern (see 1.2). Most of the available research regarding the education of ASD learners focuses on the needs of preschool learners, and there is very little literature on ASD interventions that are mainly for adolescents (see 1.2). NZMOE expressed disappointment that strategies for supporting learners at secondary school level are often based on the research about younger learners (see 1.2).

It seems as if autistic learners in secondary schools are being side-lined. As autism is a lifelong disability one can assume that these learners still need support even if they are in secondary school.

4.4.3   Preparedness in conducting services to autistic learners

Just like the secondary school teachers, the outreach teachers needed to be trained. In fact they probably needed the training more because they worked mainly with learners who experienced barriers to learning.

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4.4.3.1   Training on how to work with autistic learners

Graph 4.14: Information on training on how to work with autistic learners
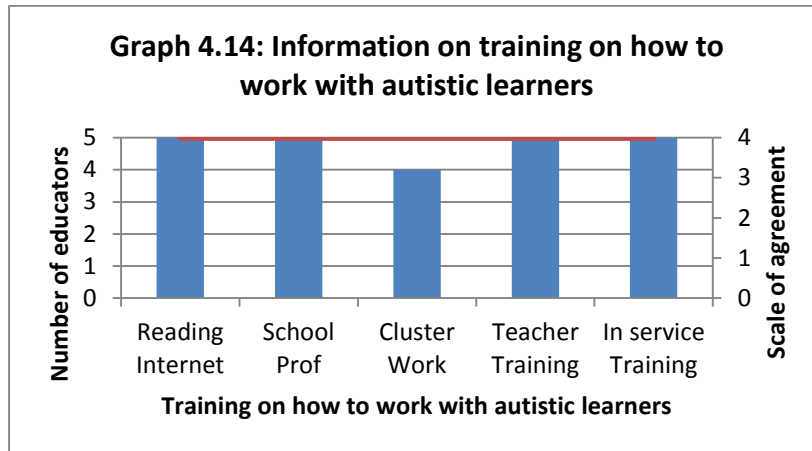
Graph 4.14 shows that all five outreach teachers obtained information on how to teach autistic learners from the Internet, school professional developments, teacher training and in-service training. Four had received training from cluster workshops as well. It is worth noting that there were some teachers who took the initiative to gather information about autism and about implementing intervention effectively through training provided by their local school districts, regional training, information presented at state conferences, reading journals, books, and Internet sites (see 2.7). Others gain knowledge through talking to or observing teachers with experience in teaching autistic learners. The outreach teachers took the initiative to gain knowledge and understanding about autistic learners. When autistic learners are understood teachers gain confidence in educating them.

4.4.3.2   Confidence in using TEACCH

Graph 4.15: Confidence using TEACCH programme
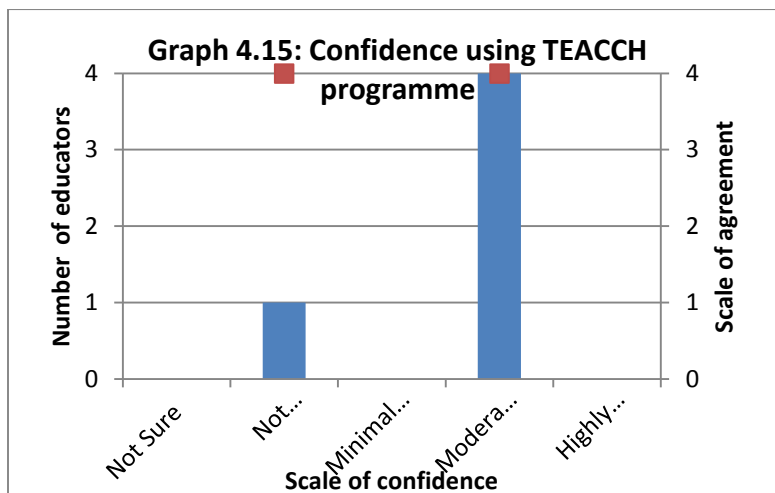
Four teachers were moderately confident in using TEACCH, and one was not confident at all (see Graph 4.15). One of the greatest challenges for teachers is how to provide instruction to autistic learners that is effective, inclusive, appropriate and acceptable. Most teachers lacked the training and confidence to teach autistic learners (see 2.7.2). Despite the fact that these teachers had had training in teaching autistic learners, they were still not very confident in using TEACCH. This shows how complex the issue is. If they were not confident in implementing TEACCH, how confident would they be in imparting their knowledge of TEACCH to other practitioners?

4.4.3.3   Confidence in facilitating a TEACCH professional development
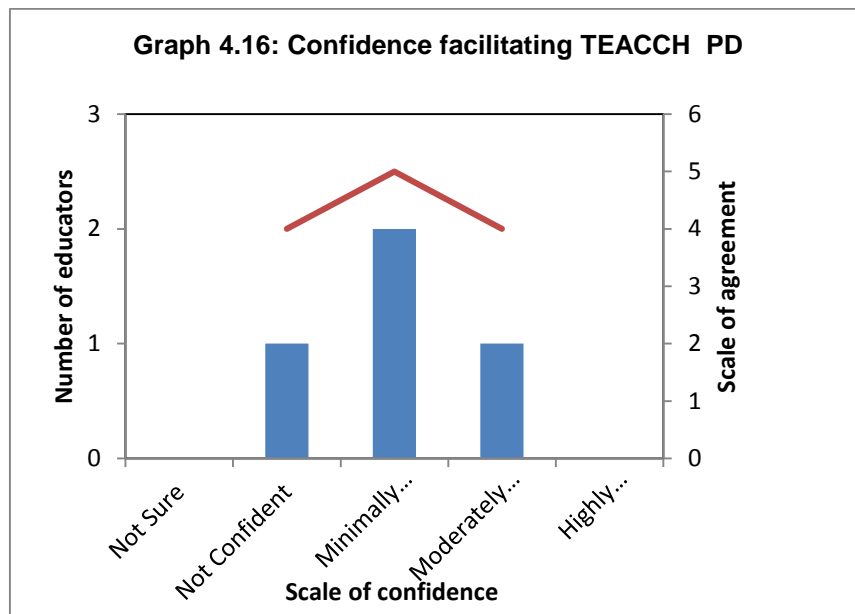
Graph 4.16 shows that one teacher was not confident in facilitating TEACCH professional development, with the other teacher was moderately confident. Two were not very confident. The other teacher did not respond to this question at all. Outreach teachers are in a position to give advice and support to the mainstream teachers they work with. Support from other professionals inside and outside the school is seen as confidence-building (see 2.7). It is interesting to find out what programs the outreach teachers recommended for teaching autistic learners.

4.4.4   Recommendation of programs for teaching autistic learners

Graph 4.17: Recommendation of programmes for teaching autistic learners
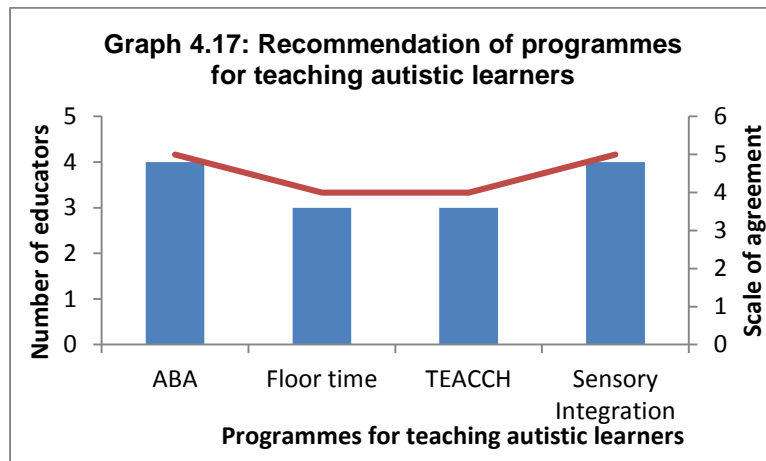
Graph 4.17 shows that four teachers would use ABA and sensory integration for teaching autistic learners. Floor time and TEACCH were chosen as options by three teachers. It must be noted that using a combination of programs is always better. For every learner who makes significant progress using a particular method, there will be one who makes comparable gains with a different method (see 2.5.1).

There was an almost even distribution on recommendations about which program to use. No specific intervention program or model has been shown to be superior to another. The most effective interventions and programs are those that are based on the individual learner's unique needs, strengths and weaknesses (see 2.7).

The use of each program has to be considered carefully. Some programs may need more time to implement, or more space, while others may require more human resources.

4.4.5   Working with other staff members designated to exclusively serve children with ASD

Graph 4.18: Frequency of working with other members designated to teach children with ASD
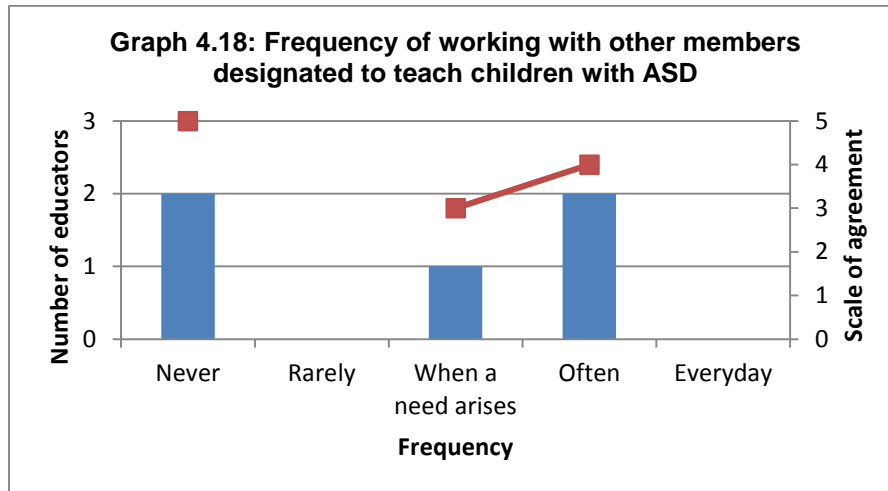
Graph 4.18 shows there were two teachers who had never worked with other members designated to teach children with ASD, and two who often work with them. One teacher indicated that she worked with other members designated to teach children with ASD when a need arose. If intervention programs are to be effective, educating autistic learners must involve teamwork and collaboration. Depending on the learner's needs, the team can include the classroom teacher, specialist teacher, speech therapist, occupational therapist, physical therapist, adaptable physical teacher, school psychologist, school nurse, and teacher's aide (see 2.6.4).

Some autistic learners might require the services of all these educators making it hard for them to be fully included as they will often be called out of the classroom.

4.4.6   Feedback on implementing TEACCH in an inclusive setting
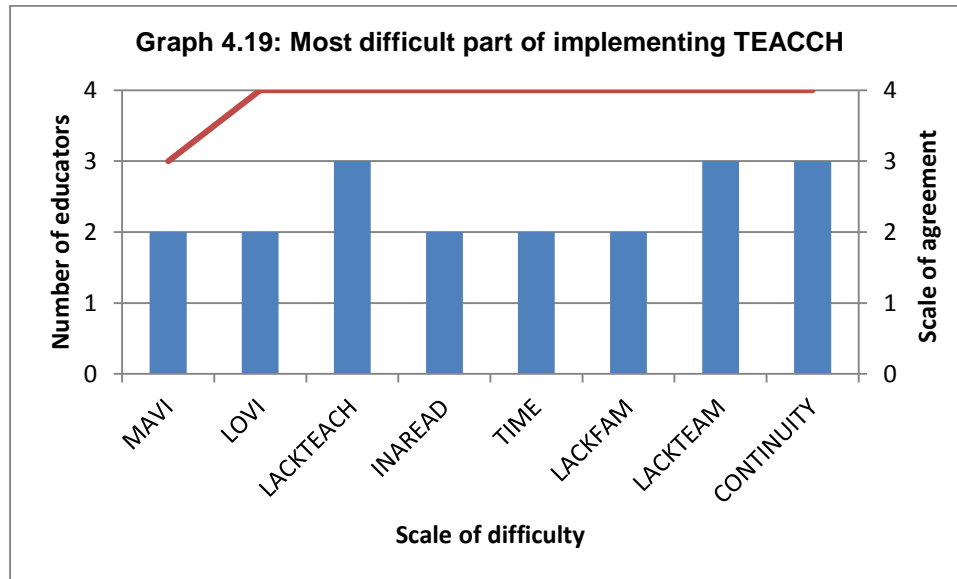
Graph 4.19: Most difficult part of implementing TEACCH

Key:MAVI = Making visuals; LOVI = Losing the visuals; LACKTEACH= Lack of teacher aide support; INAREAD = The learner's inability to read visuals; TIME = The time involved in implementing it; LACKFAM = Lack of support from family; LACKTEAM = Lack of support from other team members; CONTINUITY = Lack of continuity or use by other teachers

The feedback that teachers gave about as the most difficult aspects of implementing TEACCH is reflected in Graph 4.19. Two teachers mentioned the following: making visuals, losing the visuals, the learner's inability to read visuals, the time involved in implementing TEACCH and the lack of support from families. Three teachers reported the lack of teacher aide support, lack of support from other team members and lack of continuity or use by other teachers. It should be highlighted that some parents might not be interested in the child at all, and some children might have to be cared for elsewhere owing to their severe problems (see 2.6.2). Problems they encountered in the implementation of TEACCH did not differ very much from the problems that they faced when they tried to implement other programs.

4.4.7   Adolescence and intervention

Graph 4.20: Timing for intervention in adolescence
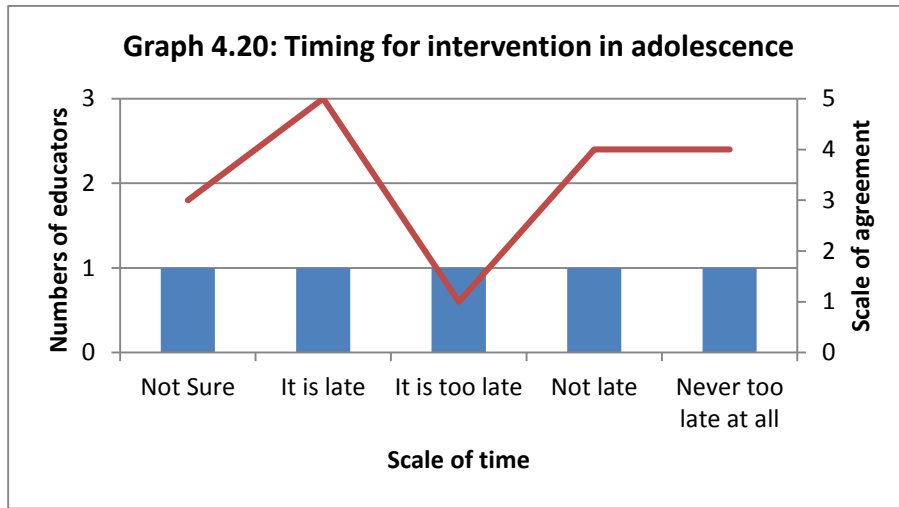
There was an even distribution of opinions regarding whether adolescence is too late for intervention. Autism interferes with teaching new skills and behaviours (see 2.2). Owing to the autistic learners' inability to think flexibly (2.8.1.1), they may find it hard to learn new skills and it may take much longer than their typically developed peers would take. The psychologist commented (4.7.2): *"Intervention, in my opinion, is always good – no matter what the age. . . The crucial aspect in intervention, whatever the learner's age, is its efficacy in bringing about positive change – always ensuring the use of evidence-based intervention strategies.* However, *"Learned behaviours, over many years, may take longer to remediate".*

4.4.8   Challenges met when trying to implement programs

Graph 4.21: Challenges in implementing TEACCH to autistic adolescents
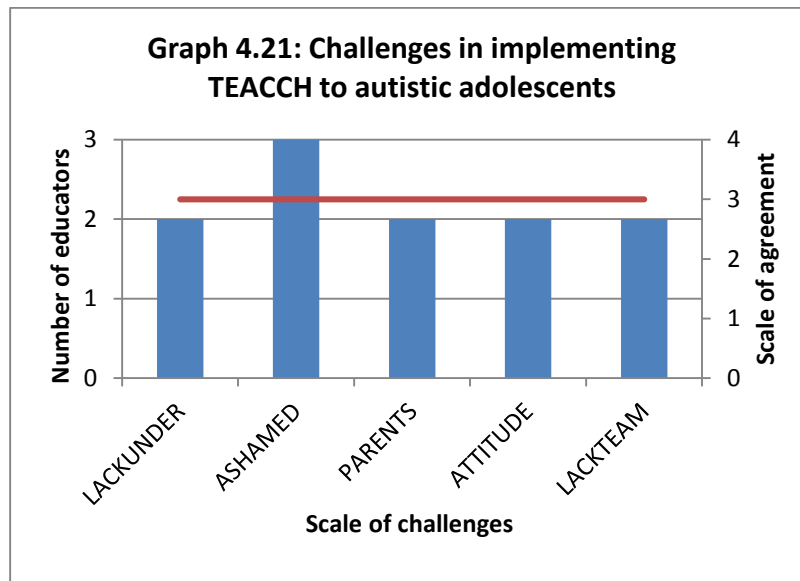
Graph 4.21 shows that:

Four participants responded that the adolescents become ashamed of undergoing some programs, with two stating:

- Parents thinking that their child does not need the program;
- Other adolescents' attitude towards the autistic adolescent;
- Lack of support from other team members.

One participant commented that she had not worked with autistic adolescents, but went further to say that problems can arise as a result of learned helplessness, in other words dependency issues. It is fascinating to find out what the outreach had to say about whether the skills learnt through TEACCH would be of any use in later life.

4.4.9   Use of TEACCH skills in later life

Graph 4.22: Use of TEACCH skills in later life
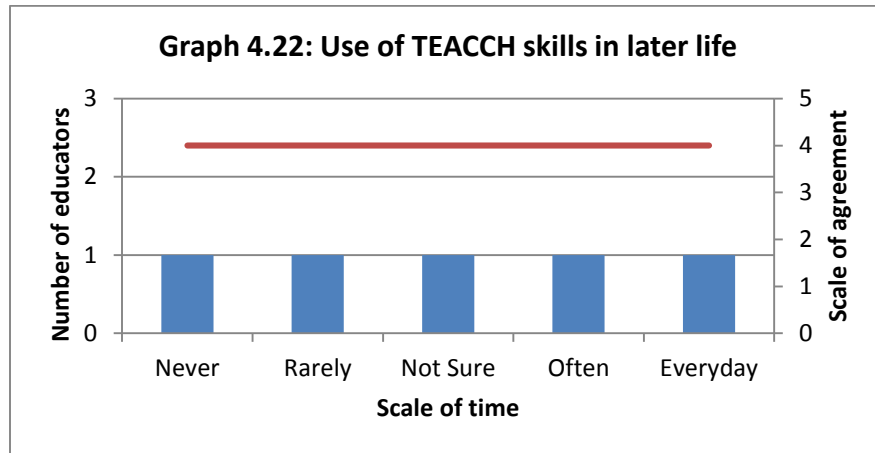
All respondents had different views on whether the skills autistic learners learn through TEACCH would be of use in later life. Graph 4.22 illustrates that their opinions were evenly distributed. The views differ because autism affects people differently and it will all depend on the cognitive capacity of individuals. Autistic learners tend to over-rely on the prompts and feedback of caregivers, and these are significant contributors to cognitive functioning, and are core deficits in autistic learners' social and communication skills (see 2.8.1.1).

4.4.10   Section summary

It is evident that outreach teachers were knowledgeable about TEACCH. They indicated that they were qualified as well as experienced in conducting services for autistic learners. It is unfortunate that their services are mainly confined to primary school children who experienced barriers to learning. With life-long challenges like autism, the outreach services could be of great help to the struggling secondary school teachers.

4.5   AUTISTIC LEARNERS AND INTERVENTION PROGRAMS

With reference to the opinions of outreach teachers, it would be interesting to find out what the outreach teachers' recommendation would be regarding intervention programs. Furthermore, the outreach teachers' opinion on the use of TEACCH in an inclusive setting will be noted in this section in addition to their feedback with regard to the implementation of TEACCH.

4.5.1   Recommendations of programs for teaching autistic learners

Graph 4.23: Recommendation of programmes for teaching autistic learners
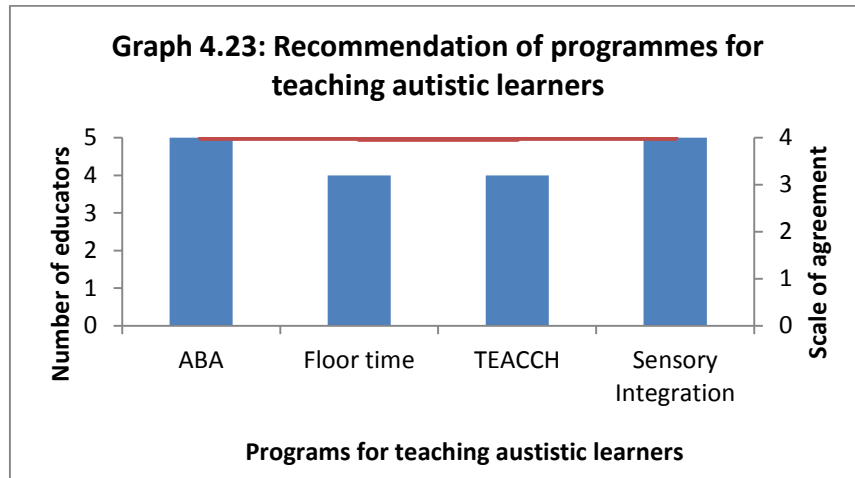
Graph 4.23 illustrates that all the outreach teachers who participated in the study recommended ABA and sensory integration as ancillary programs, while four recommended floor time and TEACCH as well. It must be noted that for every learner who makes significant progress using a particular method, there will be one who makes comparable gains with a different method (see 2.5.1).

4.5.2   Opinion regarding the use of TEACCH in inclusive classroom

Graph 4.24: Opinions regarding the use of TEACCH in inclusive classroom
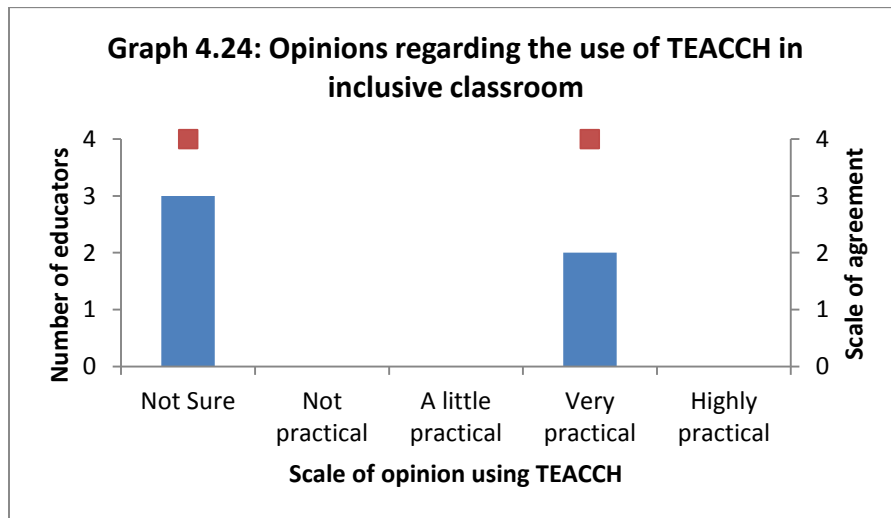
Two teachers thought that TEACCH was very practical in inclusive settings, but three were not sure how practical it is. One went further to comment, *"Difficult . . . not enough space and not inclusive actually".* Teachers and other stakeholders need to be kept motivated and to ensure that all people involved in the education of autistic learners are committed to the same goal (see 2.8).

4.5.3   Feedback on implementation of TEACCH
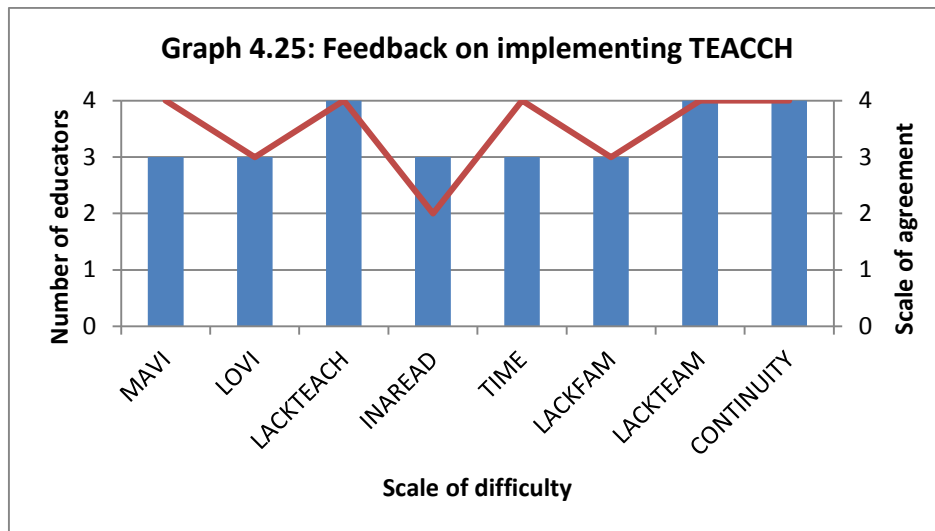
Graph 4.25: Feedback on implementing TEACCH

Key: MAVI = Making visuals; LOVI = Losing the visuals; LACKTEACH = Lack of teacher aide support; INAREAD =The learner's inability to read visuals; TIME = The time involved in implementing it; LACKFAM = Lack of support from family; LACKTEAM = Lack of support from other team members; CONTINUITY = Lack of continuity or use by other teachers.

Graph 4.25 illustrates the problems encountered in implementing TEACCH. All five outreach teachers indicated lack of teacher aide support. Three outreach teachers indicated:

- Making visuals;
- Losing visuals;
- Learners' inability to read visuals;
- Time involved in implementing TEACCH;
- Lack of family support.

A combination of these factors makes it hard to implement TEACCH effectively.

The following section focuses on the parents 'responses and opinions of the effectiveness of the TEACCH model.

4.6   PARENTS' RESPONSES REGARDING THE EFFECTIVENESS OF THE TEACCH MODEL

Three parents responded to the questionnaire. Parents know their children better than teachers do. As a result, parents play a very important role in the implementation of TEACCH. The involvement of parents promotes the transfer of learning from the classroom to the home (see 2.6.2). Co-ordination provides an

opportunity for a collaborative team approach to the development, delivery and monitoring of a plan to support learners and their families (see 2.7.3).

The analysis (see Appendix E2 for full responses) indicates that parents viewed the results from using TEACCH as positive. One parent stated, *"He is a bit independent with daily and morning routines",* with another echoing *"He is more organized".* In other researches it was found out that the effects of TEACCH on communication and daily living skills were not significant. However, social skills and adaptive behaviour showed some gains (see 2.5.1). Some of the parents preferred a combination of intervention programs, but one preferred *"a program that lays out procedure".* It must be noted that the intensity of a program and parental involvement plays a role in its effectiveness. It has been observed that, *"no single intervention resulted in the same outcomes for all children studied"* (see 2.5.1).

The parents mentioned that they got help from school or other specialists on how to use an intervention program, but one was very specific by adding *"When my child was in primary school I used to get a lot of help". Not* all parents were sure how many staff members were designated to exclusively serve their children. Social skills came on the top as the most important thing for the children to learn. The parents expressed that they were not getting enough support from the school as far as implementing TEACCH is concerned any more.

4.7   INTERVIEWS SUMMARY

The interviews with the principal and the psychologist formed the qualitative part of the empirical research. The interviews were recorded mechanically to capture the interviewee's exact words. The recorded information was then transcribed word for word.

4.7.1   Principal's interview

Table 4.4: Principal's interview summary (see Appendix C1 full interview)

During his term as an ordinary classroom teacher, the principal did not have personal experience with autistic learners. In the school there are *"three students who have been diagnosed and another two learners who could possibly have autism".* There was one teacher with special education qualifications work in the school.

The principal thought that the most important thing for autistic learners to learn was *"The process in the school so that they are able to learn within a very clear structure. - - - The key thing is for them to have absolute structure for them to learn".*

The principal's responsibilities regarding learners who experience barriers to learning are *"- - - to make sure that first of all that I don't unwittingly put other barriers to learning without being aware of it. For those who have been identified as experiencing barriers to learning my responsibility is to look at how we organize the school and the professional learning of those teachers - - -.*

Initial responsibility (for funding) *is for Ministry. They will only fund students who are at the most extreme end of the spectrum".*

The school staff received training on various methodologies for educating students with Autism Spectrum Disorders mainly *"from the RTLB support".*

The school *"doesn't have any one who exclusively serves these students* (autistic). *All three students have access to teacher aides".* The hours of teacher aide time each autistic learner gets *"- - - depends. The three boys have got different teacher aide time".*

The strategies, services, and programs *"- - -that are given to the students are significantly modified so that the students have got very specific and very clear instructions. As far as strategies are concerned the teachers use a number of visual ways to present information to the boys. We often get advice from the parents on how to deal with their son while he is at school. So the irony is we get more help from the parents than we give the parents".*

The challenge the school meets when setting or trying to implement programs for autistic adolescents *"- - - is to make sure that the programs are relevant to their learning needs as they get older. Also as they get older they are experiencing the usual difficulties of growing older as an adolescent- - -".*

Regarding additional resources that may be needed in the school to identify and/or service autistic learners the principal said, *"I do not believe that it will be particularly helpful to have specialist teachers who are experts in teaching learners with autism. It will be better, I believe, to have more teacher aide time particularly teacher aides who have had experience working with these learners".*

There were *"49 teachers, 777 students and 16 non-teaching staff"* in the school.

According to the literature study principals worry about funding for implementation of any intervention program. Principals reported negative experiences with On-going Resourcing Scheme (ORS) funding, pointing out that too few students were being funded (see 2.6.1) although principals do apply for funding for all learners who experience barriers to learning. In Table 4.5 the secondary school principal mentioned that for funding *"The initial responsibility is for the Ministry. They will only fund students who are at the most extreme end of the spectrum --- I usually have to do something else to use the operational fund to assist". . . . For those who have been identified as experiencing barriers to learning my responsibility is to look at how we organize the school and the professional learning of those teachers. . .* (see Appendix C1 for full interview). A combination of experience, support and collaboration both within and outside the school, and professional development courses, is likely to overcome reported "deficiencies", in the implementation of TEACCH, on the teacher's part (see 2.6.1).

Literature shows that some principals reported not being able to hire experienced specialized teachers using the Special Education Grant (SEG) (see 2.6.1). Schools were finding that employment contract rates were changing, but the SEG was not. This fund would not be adequate as it is meant for learners

who have moderate needs (see 1.6.5.5)and hence do not get teacher aide support and access to therapists.

Surrounded by over 800 people every school day, the autistic learners in the secondary school may not cope very well. However, other learners should be held accountable for developing learner cultures that do not exclude autistic learners and other learners who experience barriers to (see 2.7.1).

4.7.2   Psychologist's interview

Table 4.5: Psychologist's interview summary (see Appendix C2 full interview)

Regarding how many learners in the outreach program diagnosed as having autism or are suspected of having autism the psychologist worked with, he said, *"I work across two different special schools and* for a government organization *in the Auckland area 20 of the 29 have been diagnosed as autistic. Fifteen of the 29 are high schools. Most of them are in junior high school. Three would be in senior high school".*

The most important thing for autistic learners is *"How to communicate in the most appropriate ways and optimize the way of communicating with people around them. - - -develop social competency skills".*

The psychologist's responsibilities regarding autistic learners are *"As a school-based psychologist I work for a government organization. I provide person-centred direct, indirect and whole-school services. My services are divided into three different areas.*

1. *Student-Focused Indirect Services – To work with parents, teachers and school management in planning educational and behavioural interventions for their students*
2. *Student-Focused Direct Intervention . . .*
3. *School-Wide Intervention – To support systemic and evidence-based teaching and behavioural approaches, e.g., whole-staff professional development*

For people in main stream the psychologist had facilitated professional developments regarding educating autistic learners *"- - - each term for the past eight years. I have facilitated professional learning, for teachers and paraprofessionals who provide services to learners in regular schools. This is a new role for special schools, as they share their expertise with colleagues in the mainstream. Each term we choose a different topic".*

Adolescence is *"- - - never too late to offer effective intervention. However, early intervention aims to improve the core behavioural symptoms of autism* and provides the learner with the best *life outcomes. - - -Intervention, in my opinion, is always good – no matter what the age. - - - The crucial aspect in intervention, whatever the learner's age, is its efficacy in bringing about positive change – always ensuring the use of evidence-based intervention strategies.*

To support an adolescent to acquire social skills these would be helpful: *"Video modelling, and direct skill teaching, for example, Discrete Trial Training approaches, with self-management – self-monitoring, then self-regulating; and teaching Functionally Equivalent Replacement Skills".*

A success story was *"- - - of a fourteen year-old learner with high functioning ASD, with a significant obsessive compulsive behaviour leading to inappropriate sexualized behaviours. . . . Using Cognitive*

Behaviour Training (CBT) – to provide ways for this young man to be able to learn to look at how he was thinking and then to look at how that made him feel and in turn how that brought about some of the high levels of anxiety and compulsiveness which came out in sexuality behaviours. With that I found out that the young man was able to deal with the particular issue and was able to learn a number of strategies to deal with his compulsive behaviour. To this stage he hasn't presented with any inappropriate behaviour.

On strategies, services, and programs highly recommended for autistic learners the psychologist explained, *International research has suggested that there are 24 very useful strategies for people with ASD. What I have done is continue to train our staff working with part of that comes from SPELL - - - Twenty-four evidence-based strategies have been suggested, including antecedent-based interventions, computer-aided instruction, differentiated teaching, differential reinforcement schedules, social narratives (including social stories) and visual supports – all with highly predictable and structured learning environments, using TEACCH as a modality.*

The psychologist said, *"I always work collaboratively – parents are always an important part of the intervention team – strengthening the professional-family partnership- - -".*

Challenges met when setting or trying to implement programs for autistic adolescents are that *"Learned behaviours, over many years, may take longer to remediate. For typical teenagers as well because they have learnt over a long period of time- - -. Another challenge is when learners with autism develop mental health issues – we know that often in adolescence – with problems in attention, depression, obsessive-compulsive disorder, impulse control, and mostly, high levels of anxiety. There is a lot of research and literature at the moment mainly from the UK that 86% of children with ASD have also mental health issues during most of them at teenage or adolescence. Those are the challenges that psychologists face at the moment".*

For additional resources related to servicing learners with autism needed in any secondary school the psychologist responded, *"At one of the schools- - -I started to provide for them and working with the teachers to provide a functional skills curriculum to prepare the learner for their transition to adulthood- - -. While adolescence is a difficult time for most teens, it is especially tough for teens who struggle to understand ever-changing social expectations, have difficulty with social and pragmatic communication, and with a limited repertoire of skills to impact their learning styles".*

Table 4.6 is a summary of the psychologist's interview. Psychologists play a very important role in education of autistic learners. Their services include *"Student-Focused Indirect Services – To work with parents, teachers and school management in planning educational and behavioural interventions for their students"* (psychologist).The psychologist's statement concurs with the fact that teachers should be supported by specialists who have training in working with learners who experience complex barriers to learning. *"Specialist teachers have expertise in behavioural management and development of social skills"* (see 2.6.3). It is unfortunate that the psychologist did not work in the Auckland secondary school but worked in the same school with the outreach teachers. He was brought in to give an external opinion and for data triangulation purposes.

4.8 THEMES ON AUTISTIC LEARNERS AND INTERVENTION PROGRAMS

Data collected from the open ended questions in the questionnaires are presented in the form of themes and sub-themes. The information from the interviews of the principal and the psychologist will be used to substantiate the sub-themes. Table 4.7 is a summary of the themes and themes that were identified. The discussion will follow immediately after the summary in the order that is reflected in the summary.

Table 4.6: Themes in autistic learners and intervention programs

THEMES		Suggestions	Responses
Theme 1	The best thing to do to improve or enhance the implementation of programs for autistic learners	More teacher aides	6
		Special schools	1
		Communication and collaboration	3
		Professional development	3
		Support from other agencies	1
Theme 2	Areas you like to see the biggest improvements	Behaviour	6
		Communication	2
		Independence in daily living	1
		Literacy, numeracy	1
		Independence (STOS)	4
Theme 3	Comment on areas in which you would like to see the biggest improvements.	Always be dependent	6
		Hard to tell since autism is a life-long disability	3
Theme 4	Single most important thing for autistic learners to learn	Independence	5
		Communication	7
		Behaviour control	8
		Social skills	6
		Follow visual instructions	2
		Literacy, numeracy	1
Theme 5	Most important components of a successful educational program for autistic learners	Tailored to specific students' needs/ helps them cope	3
		Hard to tell because of their complexity	1
		Separating them	1
		Self-regulation	3
		Social skills	6
		Communication	5
		Attending skills	1
		Team support	2
Theme 6	What makes an educational program for autistic learners successful?	Special school	4
		Simplicity	1
		Consistence	4
		Engagement from the student	1
		Repetition	1
		Acceptance by all staff	1
		Time to implement the program	1
		Adequate space	1
		Use of technology and focus on interest	2
Theme 7	Comments on intervention programs	Stressful for teachers	2
		It is hard to deal with an extra burden	1
		Hindering other children's learning	
		More resources	1
		It is hard working with them	1
		Learn separately	1
		Useful for setting up an independent work station	1

4.8.1   Theme 1: Improvement of the implementation of TEACCH

Sub-themes:

More teacher aides- Most respondents wanted more teacher aide time. The principal said, *"--- greater access to teacher aide time . . . I do not believe that it will be particularly helpful to having specialist teachers who are experts in teaching learners with autism it will be better I believe to have more teacher aide time particularly teacher aide who have had experience working with these learners".*

The New Zealand Ministry of Education (NZMOE) funds very limited hours per week per student. *"The funding supports an estimated 17.5 teacher aide hours each week for a student with very high needs, and an estimated 10 teacher aide hours each week for a student with high needs"* (see 2.4.1 and Appendix H). By having teacher aides who work a few hours a day only, it is as if autistic learners and other children with disabilities experience challenges for those few hours that the teacher aides are at work. If teachers are left unsupported for some time, this impacts on implementation of TEACCH and other programs.

In New Zealand there are other factors, like school decile, that affect funding for a school. *The lower a school's decile rating, the more funding it gets. The increased funding given to lower decile schools is to provide additional resources to support their students' learning needs* (see 1.6.4.2). According to the 2011 Census the secondary school ranked Decile 5 (To maintain the anonymity of the school the general web-site for decile ranking for schools in the Auckland region is http://en.wikipedia.org/wiki/List_of_schools_in_the_Auckland_Region). The decile ranking resulted in the school getting medium funding from the NZMOE, which may not be enough for the resources that are required in educating the autistic learners.

The principal mentioned that there were three learners who were identified as autistic and two who were suspected of being autistic. The principal further explained that *"the three boys have got different teacher aide time"* and the school funds some of the hours that are not funded by the NZMOE.

The funding for On-going Resourcing Scheme (ORS) is pooled nationally by the NZMOE. This is then distributed to districts for allocation to students. *"For the Severe Behaviour and Speech Language Initiatives, districts receive funding allocations based on the total student population of each district. The allocations may not match the level of need in a particular district"* (see 2.4.1). This results in that even those learners who were supposed to get 17.5 hours per week may end up getting 10 hours only and thus leaving the classroom teacher unsupported for longer periods. A revisit to the UNESCO Salamanca Statement declares "*ensuring quality education to all through appropriate curricula, organizational arrangements, teaching strategies resources and partnerships with their communities"* (see 2.3). One

teacher indicated that autistic learners can perform better if more resources were available. It is quite clear that in an inclusive secondary school, for the TEACCH program to work, full time teacher aide support is required considering the transition that take place throughout the day.

Special schools: One respondent wrote, "*Put them in special schools where teachers have time for everyone and have teacher aide support all the time".* Inclusion of autistic learners for the sake of inclusion does not work. The successful inclusion of autistic learners in the regular educational setting will depend on the severity of the disability, the attitude and training of the teachers, peer models, the collaboration of the educating parties involved, as well as the use of other technology (see 2.7).

Communication and collaboration/Support from other agencies: Four people responded that communication and collaboration are important. "*Collaboration is very important. Without collaboration and cooperation programs won't work".* With the psychologist adding *"- parents are always an important part of the intervention team - - - I believe that parents and professionals must be partners in providing the best intervention for the learner with autism – from the perspective of always promoting family involvement, including the siblings."* Communication among teachers was highlighted so that there is continuity of behaviour management.

As mentioned above the collaboration of all the stake holders is imperative. Teachers and other stakeholders need to be kept motivated and to ensure that all people involved in the education of autistic learners are pulling in the same direction (2.8).

Professional development: 3 people felt that professional development was best in order to improve implementation of TEACCH. Support from other agencies involved and having TEACCH training available for parents and teachers in NZ were mentioned as well. Familiarity with theory and research is necessary. Obtaining accurate information about autism and information about the individual learners is one of most effective ways teachers can prepare for intervention and inclusion of autistic learners (see 2.7).

4.8.2   Theme 2: Areas for biggest improvements

Behaviour: Teachers wanted to see "*behaviour improvement to minimize disruption to the teaching and learning process".* Those learners have a lot of support from the psychologist who explained, *"My services"* include *"- - - work with parents, teachers and school management in planning educational and behavioural interventions for their students".* Mainstream teachers are likely to find the behaviour of autistic learners hard to manage and will need training to have specific strategies in place to deal with this behaviour, as well as to deal with the impact it may have on the other learners in the class (see 2.8). TEACCH is mainly a behavioural management system. Figures 4.2 and 4.3 are visuals that are used for

autistic learners to control their behaviour. Changes in environment and routine can easily disrupt autistic learners' behaviour. TEACCH programs adopt strategies to assist the learner with transitions from one activity to another (see 2.5.1). Visual supports can help autistic learners to self-monitor, stay organized, and communicate. They also provide predictability and routine for students, acting as a reminder of behaviour expectations.

Communication: Communication was mentioned again. It is evident that communication is a top priority for autistic learners. Their decreased communication skills often impede their participation in a general educational environment (see 2.5.1). Ineffective communication can lead to behaviour problems that additionally hinder autistic learners' functional social and academic participation in inclusive environments.

Independence: Most commented that they would like to see great improvement in independence. Most autistic learners lack organising skills (see 2.5.1). Some of the characteristics of autism are disorganization and difficulties with sequencing and time management (see 2.4.1). They lack adaptive skills as far as daily living skills are concerned. They tend to develop a dependency syndrome because adults around them organize everything for them. Hence six thought that autistic learners will *"always be dependent".* Autistic learners can cope if they are provided with external organizational support. Task cards, with a list of things to do, may help them stay on track and manage their time (see 2.5.1).

The outreach teachers had noticed that autistic learners they worked with had developed independent learning, active engagement, and could sit at the table with peers after TEACCH intervention was used. The improvement in autistic learners' functioning could have been realized because those learners had a lot of human support.

Literacy and numeracy: This can be hard for autistic learners because of other overlapping challenges like intellectual disabilities. *"The key thing is for them to have absolute structure for them to learn . . ."* (principal). The autistic learners' behaviour can hinder them from learning unless they have absolute structure.

4.8.3   Theme 3: Comment on areas of the biggest improvements

Hard to tell since autism is a life-long disability. A participant commented, *"They will always be dependent . . . programs will not help".* Autism is a lifelong behaviourally defined condition that affects the way a person communicates and relates to other people (see 2.2.1). Since autism is a lifelong disability, this makes it hard to tell whether without support the gains that they make can be sustained.

4.8.4   Theme 4: Single most important thing for autistic learners to learn

Independence: Some people commented on independence again. Secondary school organizations as well as the physical environment call for independent behaviour as learners have to find their way from one class to another, and with a different teacher for every class (see 2.5.1). The day-to-day complexities of secondary school organizations as well as physical environment call for independent behaviour as learners have to find their way from one class to another, and with a different teacher for every class (2.5.1). Even in adulthood, autistic people, with or without intellectual disabilities, have been found to be heavily dependent on others.

Communication: Autistic learners experience communication problems. It is one of the triad of impairments. Their inability to communicate effectively frustrates them and this leads to behaviour problems (see Theme 2 for more).

Behaviour control: A greater number of the people felt that behaviour control was the single most important thing for autistic learners to learn. In addition to the triad of impairments, five broad domains of behaviour may be included, namely an inclination towards violence, self-injury, destruction disruption and excessive self-stimulation (see 2.2.1). There was evidence that the school was using TEACCH to help autistic learners manage their behaviour. TEACCH is not a teaching or learning system, but a behavioural management system. Since autistic learners' behaviour is easily disrupted by changes in environment and routine, TEACCH programs adopt strategies to assist the child with the transition from one activity to another (see 2.5.1).

Social skills: Autistic learners have difficulties in social interactions that call for advanced social skills. Nine respondents commented that social skills were very important. The psychologist said, ". . . *another core-deficit for people with ASD is they have to develop social competency skills if they could develop their social communication and social competency skills they could have a far greater role to play in society".* Two parents commented that they would like their teenaged autistic children to develop social skills. Lack of social skills is one of the triad of impairments that autistic learners experience (see 2.2.1). Generally, autistic teenagers, unlike typical teenagers, lack either the desire or need to interact with others. The difficulty with perspective taking makes all sorts of social interaction challenging (see 2.8.1.2). The improvements in social skills may be over-shadowed by the fact that social rules and over-polite behaviour are usually learnt by rote and applied without regard to the situation or the person involved (see 2.8.1.2).

Follow visual instructions: It has been discussed under 4.3.6 that in order to use visuals the learner must have visual skills for observing and remembering visual patterns, and the skill to use them when needed.

Literacy and numeracy: The importance of literacy and numeracy among autistic learners was mentioned. There is a need to tailor instruction to each learner's individual learning styles and needs, that teachers of autistic learners be fluent in a wide range of educational strategies across various theoretical traditions (see 2.5.1) for autistic learners to develop literacy and numeracy competencies.

4.8.5 Theme 5: Most important components of a successful educational program for autistic learners

Social skills: Most of the participants indicated that the teaching of social skills was an important component of a successful educational program for autistic learners. The psychologist reiterated that: "*Good social skills are important tools for day-to-day living - they help children navigate social interactions effectively and smoothly".* He added that social skills can be taught via *"Video modelling, and direct skill teaching, for example, Discrete Trial Training approaches, with self-management – self-monitoring, then self-regulating; and teaching Functionally Equivalent Replacement Skills".* ASD has been described as a disability that affects every aspect of a person's day-to-day life, including social inclusion. Autistic learners generally show little interest in other people and fail to learn from their natural environment as successfully as other children do (see 2.2.1). Direct teaching of social skills does help sometimes. The psychologist gave an example of how he had helped a high functioning 14-year old autistic boy by employing Cognitive Behaviour Training (CBT).

Tailored to specific students' needs/ Helps them cope: Three participants commented that components of a successful educational program, for autistic learners, must be tailored to suit specific students' needs. Autism affects people in different ways. Some programs may not suit some autistic learners depending on their abilities.

Hard to tell because of their complexity: For some individual teachers it is really hard to tell what most important components of a successful educational program for autistic learners should be, especially for the teachers under five years in the teaching field.

Separating autistic learners: Separating autistic learners from their typical neuro-developed peers was given as a factor that would help implementation of programs. A researcher observed that when a teacher was giving instructions, all learners were attentive, quiet and with some of them taking notes (see 2.5.1). The noise level was low when learners worked individually. The noise level rose when they worked in pairs or small groups, and the autistic learners would begin to fidget or cover their ears with their hands. Covering of ears would definitely lead the autistic learner to miss out on some important information.

Self-regulation: Self-regulation was regarded as an important component of a successful educational program. A program that promotes behaviour management and independence is important. Autistic

learners' specific behavioural problems can cause interrelationship problems between the learners and those they interact with (see 2.8.1.2).

Attending skills; Communication; Team support - These sub-themes have been discussed in other sections.

4.8.6   Theme 6: What makes an educational program for autistic learners successful?

Special school: Some participants felt that special schools make educational programs for autistic learners successful. "*Children with autism MUST learn separately".* Literature has consistently shown that teachers in public schools are often ill-prepared both in knowledge as well as in skills and attitude, to teach autistic learners (see 1.4).

Simplicity and Consistence: Simplifying work and being consistent for autistic learners emerged as important factors of a successful educational program. If the work is complex they struggle to manage and display unacceptable behaviour as a way to release their frustrations. Also, consistency in what they do helps them cope as they thrive on sameness (see 2.2.1). Although many autistic individuals also have an intellectual disability, the two disorders are not the same, and it is important to understand the unique characteristics of autism in order to develop effective intervention (see 2.8.2). The use of effective teaching strategies for autistic learners can have a measurable, positive impact on family/teacher stress.

Engagement by the student happens if the student's program is well laid out and broken into step by step instructions. Structured teaching addresses challenging behaviour in a proactive manner by creating appropriate and meaningful environments that reduce the stress, anxiety and frustration that autistic learners may experience (see 2.5.1).

Using special interest – includes focus on interests, focus on strengths and then giving adequate challenging/ realistic work. The TEACCH program capitalizes on a learner's interests, even though the area of over focus may be peculiar from a typical neuro-developed person's perspective (see 2.5.1). Autistic learners usually get obsessed with certain subject such as maps or anything on wheels. Since fixation on certain objects cannot be avoided, it is better to use them to encourage school work (see 2.5.1).

Repetition is important for teaching particular skills to autistic learners. Repeated use of a wide variety of objects that are considered to be visual supports can yield positive results. It is necessary to consider each learner individually and establish a method for determining what type of visual support system will

be the most appropriate intervention to address a learner's skill development across behavioural, communication, academic, and social skill domain areas (see 2.5.1).

Adequate space: A respondent pointed out the issue of limited space for proper implementation of TEACCH. It has to be clear to teachers that more space would be needed to implement TEACCH. Structured teaching addresses challenging behaviour in a proactive manner by creating appropriate and meaningful environments that reduce the stress, anxiety, and frustration that autistic learners may experience (see 2.5.1). To prevent behaviour meltdowns, it is of paramount importance to have a designated area where the learner can take a break prior to a situation getting out of control (see 2.5.1). It was observed that some general education inclusion teachers implemented physical structure more effectively in their classroom, but struggled with the implementation of visual schedules (see 2.5.1). The empirical evidence confirms the evidence found in literature.

Above all, a respondent mentioned that understanding autistic spectrum disorders is an important component for intervention programs.

Time to implement the program: The issue of time involved in the implementation of TEACCH was highlighted. There are increased demands on teachers' time if TEACCH is to be implemented properly (2.5.2). There will be a need to co-ordinate programs, and an increased need to work with other professionals and paraprofessionals so that there is continuity in implementing TEACCH.

Acceptance by all staff and time to implement the program; Communication: However TEACCH is observed as a time consuming task for those implementing the program(see 2.5.1) as another adult has to assist with transitions.

4.8.7   Theme 7: Comments on autistic learners

Stressful for teachers:

It is hard to deal with an extra burden. If the teachers are to follow an intervention program properly, in particular the TEACCH program, autistic learners become burdensome on teachers and cause stress. Teachers have to make a lot of visual aids for every activity in order to cater for the learners' needs (see 2.7.2). The typical high school teacher is responsible for 120 to 180 students per day which leaves teachers little opportunity to monitor their students' academic, social, or behavioural and progress (see 2.7.2).

Hindering other learner's learning: In a secondary school teachers are dealing with adolescents who may feel that they are being overlooked as the teacher tries to organize the autistic learner while the rest of the class may have to wait. If the teacher does not have an aide, depending on the severity of the autism, either the autistic learner will be ignored or the other students may be neglected as the teacher might primarily attend to the autistic learner in an effort to implement TEACCH successfully.

The typical adolescent can think systematically and abstractly about worlds that do not even exist. *"Abstract thinking leads teenagers to be able to consider multiple points of view, conduct reasoning from principles and ponder a full range of possibilities, and to logically use symbols related to abstract concepts, such as algebra and science"* (see 2.8.1.1). This leaves out the autistic adolescents who do not display flexible thinking and cannot think far beyond what they see, resulting in dependence on adults for direction in most tasks

Findings show that teachers of autistic learners:

- Need more resources;
- It is hard working with them;
- Learn separately.

There is substantial overlap between ASD and Attention Deficit Hyperactivity Disorder (ADHD) (see 2.2.1). Although children with ADHD may be aware of right and wrong, they often act before they think. The challenges that teachers in the Auckland secondary school meet in education of autistic learners can be worse especially if ADHD is present. Teaching a learner who presents considerable difficulties can be exceptionally stressful (see 2.7). If such challenges occur it is not surprising that the teachers would rather have autistic learners learn separately. Hence the above comments were made.

For TEACCH programs to help it would depend not only on human resources available but on the autistic learner's level of operation. *"Another challenge is when learners with autism develop mental health issues – we know that often in adolescence – with problems in attention, depression, obsessive-compulsive disorder, impulse- control, and mostly, high levels of anxiety. There is a lot of research and literature at the moment predominantly from the UK that 86% of children with ASD also have mental health issues - most of them at teenage or adolescence"* (Psychologist) (see Appendix C2 for full interview)*.* It was revealed that 70.8% of children with ASD met the criteria for psychiatric disorder (2.2.1).Such challenges would make it even harder for any school to implement programs with limited resources.

4.8.8   Summary

For educational programs for autistic learners to be successful the teachers gave simplicity, consistence, repetition, and behaviour management as important factors. It is evident that most of the teachers felt that autistic learners would make more educational gains if they were in special schools. With the lack of enough support for program implementation the teachers are justified in their opinion of separating autistic learners. Autistic learners were regarded as burdensome as they tend to rely on adults for direction in most activities.

4.9   OVERALL SUMMARY

This chapter discussed how autistic learners should be taught effectively against the inclusive background. This included teacher qualifications, support, experience and collaboration. The opinions of teachers and parents of the TEACCH program were analysed in this chapter. The teachers' attitude towards inclusion of autistic learners was that they (autistic learners) must learn separately for effective implementation of TEACCH. The teachers expressed concern at the lack of cooperation and coordination to some extent. Finally the effectiveness of the use of the TEACCH program in the school in Auckland was discussed with parents stating that they had noticed an improvement in their children in certain areas. The possible difference between opinions in the Auckland school and the literature will be discussed in the next chapter.

CHAPTER 5
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1   INTRODUCTION

The aim of this research was to add on to existing literature the use and effectiveness of TEACCH in an inclusive secondary school in Auckland, New Zealand. Data were collected from outreach teachers, teachers in an Auckland secondary school, parents whose children are autistic and were at the secondary school, the principal and the psychologist. It has been established in the previous chapter how educators' opinions and experiences differ or concur regarding the implementation of TEACCH. This chapter provides a synthesis of the literature reviewed in Chapter 2 and the empirical study that was presented in Chapter 4. Suggestions for further research in the context of the New Zealand education system were provided.

The discussion was guided by the following research questions:

- What is the teachers' opinion regarding the effectiveness of the TEACCH model?
- What is the parents' opinion regarding the effectiveness of the TEACCH model?
- According to literature, what are the best practices for teaching autistic learners in a mainstream environment?

Their responses indicated that education of autistic learners is a complex issue which needs strong coordination and cooperation from everyone involved.

5.2   TEACHERS' OPINIONS REGARDING THE EFFECTIVENESS OF THE TEACCH MODEL

In order to implement TEACCH effectively, these were some of the teachers regarded as important:

- Professional development, communication and collaboration among teachers

- Teacher aides working full time.

- Having autistic learners' separated or in special schools for the effective implementation of TEACCH.

- Separating autistic learners would destroy the overall goal of inclusive education which is to increase learners' participation in the cultures, curricula and communities of their local schools.

- Adequate retraining in methods of teaching autistic students to boost teacher confidence.

Some teachers expected autistic learners to develop self-regulating and management skills through the use of TEACCH.

5.2.1   Most difficult part of implementing TEACCH

There are many factors that can influence the teaching of autistic learners and the implementation of intervention programs. The majority of the teachers highlighted these factors:

- The autistic learners' behaviour;
- Their inability to communicate effectively;
- Lack of teacher aide support;
- The time involved in implementing programs for them;
- Lack of support from family;
- Lack of support from other team members;
- Lack of continuity or use by other teachers.

Most of the teachers' views were negative about the implementation of TEACCH in the school. The teachers at the secondary school were faced with challenges from two other learners who were suspected of being autistic. They probably went through the assessment 'sieve' and as a result were not diagnosed as autistic. There was no teacher aide support for these learners, but the learners get RTLB support (see 1.6.4.5). It can only be assumed that the ideas the teachers gleaned from educating learners who were under the RTLB program were transferred to the education of those autistic learners who were ORS-funded and who were no longer receiving outreach support.

For the TEACCH program or any other program to work, communication and collaboration are of paramount importance. Evidence gathered reflects that there was a certain lack of cooperation and collaboration among teachers. Lack of team work hinders the effectiveness of TEACCH and all other programs.

5.2.2   Principal's experiences

Principals are faced with the dilemma of recruiting qualified teachers to teach autistic learners. Of the 49 teachers and 16 non-teaching staff in the school, only one had a special education qualification namely, the Resource Teacher: Learning and Behaviour (RTLB).

The principal understood his responsibilities concerning autistic learners.   The principal listed his experiences as:

- To constantly review what the autistic learners are doing, and to make sure that first of all that he did not unwittingly put other barriers to learning without being aware of it.
- To make sure that the programs were relevant to the autistic learners needs as they got older.
- The guidance counsellor was a key resource in that.
- To ensure that the school kept in constant contact with the learners' parents.
- As far as helping parents with intervention programs at the secondary school *"help probably comes the other way. We often get advice from the parents on how to deal with their son while he is at school. So the irony is we get more help from the parents than we give the parents"* (principal).

This is not surprising due to funding (see Appendix H 1:4.11) all five outreach teachers no longer dealt with autistic learners in secondary schools. One clearly stated *"not any more"* to the question on how many secondary school autistic learners she had in the outreach program.

The principal mentioned that the teacher aide time with the autistic learners varied. It means there was at least one learner who had very high needs and posed great challenges to everyone around him. The psychologist shared a success story of *"a 14- year-old learner with high functioning ASD, with a significant obsessive compulsive behaviour leading to inappropriate sexualized behaviours".* It needs not be emphasized that specific behavioural problems of autistic learners can cause interrelationship problems between the learners and those with whom they interact (see 2.8.1.2).

Additional resources related to means of implementing TEACCH effectively were needed in the school. These included *". . . greater access to teacher aide time. . . . I do not believe that it will be particularly helpful to having specialist teachers who are experts in teaching learners with autism it will be better I believe to have more teacher aide time particularly teacher aides who have had experience working with these learners"* (Principal).

5.3   PARENTS' EXPERIENCES REGARDING THE EFFECTIVENESS OF THE TEACCH MODEL

Parents of three of the autistic learners stated that challenges facing their children before they began the TEACCH program ranged from screaming and many tantrums, meltdowns, and going through chores. After TEACCH had been implemented these were some of the improvements the parents noticed:

- The child became calm and demonstrated independence with daily and morning routines.
- Became more organized.
- Increased overall productivity and independence as they knew which steps to take.

The parents felt that a combination of different programs or a program that lays out procedure was the best way to educate children with autism.

All three parents commented that they had received help from the school or other specialists on how to use an intervention program. However, they said that they did not receive enough support from the school. One parent specified; *"When my child was in primary school I used to get a lot of help".* Some parents offered ideas about working in collaboration with schools to implement set programs, while others felt that they were not being treated as partners, but suggested that they might be in danger of being *"left out of the loop"*. One parent stated, *"I used to get a lot of support. Maybe they feel we do not need it any more".* All five outreach teachers no longer had learners who experienced barriers to learning in secondary schools. However, the psychologist (who works for a number of organizations) had some secondary school learners who experienced a variety of challenges. Unfortunately he did not work in the Auckland secondary school used in the research.

5.4   RECOMMENDATIONS TO IMPROVE PRACTICE

In order to maximize the participation of autistic learners, support must be available at all levels, irrespective of the degree to which they are affected by autism. For programs to succeed it is important to identify the major challenges and have them addressed. These challenges include:

- Making professional development in special education a pre-requisite for renewing teacher registration;
- Annual or bi-annual professional development about autism because teachers do not stay with the same group throughout the secondary school and that there has been a dramatic rise in autism;
- Making maximum use of specialist teachers like STOS and psychologists who have comprehensive knowledge about assessing and teaching autistic learners;
- Employing teacher aides who work full time in inclusive settings.

5.5   RECOMMENDATIONS FOR FURTHER RESEARCH

It would be ideal to make a comparative study of several secondary schools to determine the effectiveness of TEACCH in inclusive secondary schools. These secondary schools might have to be in different deciles. Also, a comparative study on the teachers' experience in the implementation of TEACCH: one group having undergone intensive training in TEACCH and working in mainstream schools could be compared with another group in a special education setting.

A longitudinal research study could help determine whether the skills the autistic learners get through TEACCH would be of any help in later life.

5.6 LIMITATIONS OF THE STUDY

These findings do not apply to all secondary schools. This research was limited in that it had a very small sample, and there was not sufficient time to include all possible participants like teacher aides and other non-teaching staff who worked with autistic learners. The researcher's original plan, as presented in her research proposal, was to conduct a survey among outreach teachers who were working with autistic learners in the secondary school. The researcher discovered late in the research that the outreach services had been discontinued. The RTLB had become the main support for teachers and some of the learners suspected of being autistic. The RTLB declined to be involved in this study.

5.7 CONCLUSION

This chapter gave the findings of the research based on the literature review. This research established that the implementation of TEACCH was hindered by the lack of teacher support in an Auckland secondary school. The other factors that challenged implementation of programs were lack of support and continuity from other team members. It also established that the teachers would rather have autistic learners learn separately.

The results of this study established that all the secondary school participants had no special education qualifications. This suggested that the teachers might struggle in their efforts to educate autistic learners.

The study revealed that the shortage of teacher aides who worked full-time and dealing with autistic learners' behaviour were identified as contributing factors hindering the implementation of TEACCH. However, teachers could source assistance from STOS and psychologists, funds permitting, to help autistic learners.

There were mixed views on whether adolescence was too late to start intervention programs. Some teachers said it was too late while others said it was not. There was a difference in the opinions of teachers and guidelines offered by experts. The experts maintained that while the schools should be helping parents on how to deal with the autistic learners, it was the school that was being helped by the parents.

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UNISA | college of education

Research Ethics Clearance Certificate

This is to certify that the application for ethical clearance submitted by

ChipoNgara

for a M Ed study entitled

Autism in inclusive education: The employment of TEACCH in a

secondary school in Auckland, New Zealand: A case study

has met the ethical requirements as specified by the University of South Africa

College of Education Research Ethics Committee. This certificate is valid for two

years from the date of issue.

Prof CS le Roux 20 September 2013
CEDU REC (Chairperson)
lrouxcs@unisa.ac.za

Reference number: 2013 MAY/4614-410-2/CSLR

APPENDIX B: Principal's informed consent to grant permission to research

THE PRINCIPAL

Dear Mr……….

Request for permission to conduct research at your school

Research project for dissertation of limited scope for MEd. in Inclusive Education at the University of South Africa (UNISA)

Research title: **Autism in Inclusive Education: The Employment of TEACCH in a Secondary School in Auckland New Zealand: A Case Study**

I, **Chipo Ngara**, hereby request your assistance in the completion of this research, which is a requirement for the completion of my Master's Degree in Inclusive Education, at the University of South Africa.

The study aims to obtain an in-depth understanding of how autistic learners' opportunities for learning are increased by the employment of TEACCH.

I am planning to obtain the necessary information for this research project through the use of questionnaires and interviews. Therefore I kindly request your permission to interview you and to allow approximately 8 teachers, who work directly with the learners to complete questionnaires. This will not take more than 15 minutes of their time and 15minutes of your time, as well. I also plan to interview the psychologist with your permission, which will take about 15 minutes of her time.

All information gathered in the research study will be treated as strictly confidential at all times. Participants' participation will remain voluntary at all times and they are allowed to withdraw from the study at any time, without any penalty. There are no costs or financial gains from this research. The participants themselves will receive no compensation or reimbursement for participating in this study. I will share the results of this research with you.

This study will however benefit our (parents, teachers and other adults working with autistic children) understanding of how autistic learners' opportunities for learning are increased by the employment of TEACCH.

I would greatly appreciate the positive consideration of my request to conduct my research study at your school.

If you have any doubts you are welcome to contact me at Contact details: i.ngara@xtra.co.nz +614 5947 0133, or my research supervisor Dr CS Gous-Kemp at tel +27 12 429 4888; cell 082 258 3441; fax 0866421624.

Thank you very much in anticipation of helping me to reach my goal.

Signed: _____   Date: _____
Principal

APPENDIX C: Principal's and Psychologist's informed consent for interviews

Dear Sir

Permission for an interview:

Research project for dissertation of limited scope for MEd. in Inclusive Education at the University of South Africa (UNISA)

Research title: **Autism in Inclusive Education: The Employment of TEACCH in a Secondary School in Auckland New Zealand: A Case Study**

I, **Chipo Ngara**, hereby request your permission to interview you. As part of my MEd studies with UNISA, I am investigating The employment of TEACCH in an inclusive secondary school in Auckland.

In order to complete the requirements for the course, I have to become acquainted with various aspects of supporting autistic learners in inclusive settings. We value your skills and expertise in the education of learners with various abilities, and would therefore like to include you in this research project.

I am planning to obtain the necessary information for this research project through the use of questionnaires and interviews. Therefore I kindly request you to give me 15 minutes of your time for the interview.

Please note that your identity and all identifying information of the school will be kept strictly confidential and will remain anonymous. There are no costs involved and no compensation will be given to participants in this research study.

You are free to withdraw your consent to participate and may discontinue your participation in the study at any time without consequence.

Any findings pertaining to this research study will be made available for your perusal should you wish to examine them.

I would greatly appreciate the positive consideration of my request to conduct my research study at your school.

If you have any doubts you are welcome to contact me at Contact details: i.ngara@xtra.co.nz +614 5947 0133, or my research supervisor Dr CS Gous-Kemp at tel +27 12 429 4888; cell 082 258 3441; fax 0866421624.

Thank you very much in anticipation of helping me to reach my goal.

_____   _____

Chipo Ngara (Mrs)   **Dr Gous Kemp**M.Ed   Student
                    Research Supervisor

_____

Please complete the following in order to confirm your willingness to participate in the research project:

I, _____ hereby give my informed consent to participate in the above-mentioned research project.

Signed: _____   Date: _____
Chipo Ngara

Signed: _____   Date: _____
Principal/

Principals' interview schedule

Autism in Inclusive Education: The Employment of TEACCH in a Secondary School in Auckland New Zealand: A Case Study

1. During your term as an ordinary classroom teacher, did you have personal experience with learners who have autism? If yes describe.
2. How many learners in the school have been diagnosed as having autism or are suspected of having autism?
3. How many teachers with special education qualifications work in the school?
4. What do you think is the most important thing for learners with autism to learn?
5. What are your responsibilities as principal regarding learners who experience barriers to learning?
6. From where have your staff members received training on various methodologies for educating students with Autism Spectrum Disorders?
7. Describe any professional developments and specific training some of your teachers have had in educating learners with autism.
8. How many staff members are designated to exclusively serve children with ASD in your school? Which government ministries are they from?
9. What strategies, services, and programs are provided at your school for learners with autism?
10. What does your school do to help parents cope with their child who has autism?
11. What challenges does the school meet when setting or trying to implement programs for autistic adolescents?
12. What additional resources related to identifying and/or servicing learners with autism do you believe are needed in your school?

Principal's Interview

Questions	Responses
During your term as an ordinary classroom teacher, did you have personal experience with learners who have autism?	*No*

How many learners in the school have been diagnosed as having autism or are suspected of having autism?	*We have got 3 students who have been diagnosed and we probably got another 2 learners who could possibly have autism or somewhere on the scale*
How many teachers with special education qualifications work in the school?	*One*
What do you think is the most important thing for learners with autism to learn?	*The most important thing for those learners is to learn the process in the school so that they are able to learn within a very very clear clear structure. So for those learners with autism the key thing is for them to have absolute structure for them to learn.*
What are your responsibilities as principal regarding learners who experience barriers to learning?	*My responsibility is to make sure that first of all that I don't unwittingly put other barriers to learning without being aware of it. My responsibility is to constantly review what they are doing to make sure that we are not unwittingly putting other barriers to learning to students. For those who have been identified as experiencing barriers to learning my responsibility is to look at the structure, by looking at how we organize the school and the professional learning of those teachers to help reduce those barriers to learning*
Is it your responsibility to see to it that they get funding or is it some else's responsibility?	*Funding – initial responsibility is for Min. They will only fund students who are at the most extreme end of the spectrum and usually they will fund them completely to meet their needs so I usually have to do something else to use the operational fund to assist.*
From where have your staff members received training on various methodologies for educating students with Autism Spectrum Disorders?	*The main source of training has been from the RTLB support. We have had quite good help from the RTLB – in giving us strategies of dealing that has been the main event of course they have link to special education*
Describe any professional developments and specific training some of your teachers have had in educating learners with autism.	*I can't answer that specifically in terms of what the teachers have done. I can tell you generally what it is because one of my deputies is responsible for SE he would know the specifics I just know the general strategies they adopt.*
How many staff members are designated to exclusively serve children with ASD in your school? Which government ministries are they from?	*We don't have any one who is exclusively serve these students. The students are in classes across the school so there are no staff members who are designated exclusively for those 3 students.*

Do they have teacher aides?	*All 3 students have access to teacher aide*
How many hours does each student get of teacher aide time?	*It depends the 3 boys have got different teacher aide time I can't tell you off the top of my head but I can say there are three different amount of time allocated and some of it is funded by the Ministry. The rest is funded by us*
What strategies, services, and programs are provided at your school for learners with autism?	*The programs that are given to the students are significantly modified so that the students have got very very specific and very very clear instructions. In terms of the complexity of the tasks they are reduced so that the students have got very very clear one thing at a time to do. As far as strategies are concerned the teachers use a number of visual ways to present information to the boys.*
What does your school do to help parents cope with their child who has autism?	*That's an interesting question. Help probably comes the other way. We often get advice from the parents on how to deal with their son while he is at school. So the irony is we get more help from the parents than we give the parents.*
What challenges does the school meet when setting or trying to implement programs for autistic adolescents?	*The most difficult part is understandable the programs for these learners have to be very very specific and very structured. The challenge is to make sure that the programs are relevant to their learning needs as they get older also as they get older they are experiencing the usual difficulties of growing older as an adolescent so the challenge to us is to make sure that we meet their needs as they become older. The guidance counsellor is a key resource in this and making sure that we keep in constant contact with the learners' with parents as a key dimension too.*
What additional resources related to identifying and/or servicing learners with autism do you believe are needed in your school?	*Probably greater access to teacher aide time in this particular school because we are dealing with such low numbers. I do not believe that it will be particularly helpful to having specialist teachers who are expects in teaching learners with autism it will be better I believe to have more teacher aide time particularly teacher aide who have had experience working with these learners.*
How many teachers do you have in the school?	*We have got 49*
How many students?	*777*
How many non-teaching staff?	*16*

APPENDIX C2 Psychologist's interview questions and interview

Autism in Inclusive Education: The Employment of TEACCH in a Secondary School in Auckland New Zealand: A Case Study

Psychologist interview schedule

1. How many learners in the outreach program have been diagnosed as having autism or are suspected of having autism do you work with?
2. What do you think is the most important thing for learners with autism to learn?
3. What are your responsibilities as psychologist regarding autistic learners?
4. Describe professional developments and specific training that you have facilitated regarding educating autistic learners.

5. Is adolescence too late for intervention to start?

6. Why is adolescence a good/bad age to do intervention with autistic learners?

7. How would you support an adolescent to acquire social skills?

8. Share a success story with me.

9. What strategies, services, and programs do you highly recommend for autistic learners?
10. Do you sometimes work directly with parents who have an autistic child?
11. What challenges do you meet when setting or trying to implement programs for autistic adolescents?
12. What additional resources related to identifying and/or servicing learners with autism do you believe are needed in any secondary school?

Psychologist interview

Questions	Responses
How many learners in the outreach program have been diagnosed as having autism or are suspected of having autism do you work with?	*I work across 2 different special schools in the Auckland area 20 of the 29 have been diagnosed as autistic. Other learners have Cerebral Palsy, Down Syndrome, Tourette's; Angelman Syndrome, Prader Willi and FASD (Foetal Alcohol Spectrum Disorder), or other complex learning difficulties, including global developmental delay. They have a very wide range of disabilities. Most of them have autism.*
Out of those students how many are in high school?	*15 of the 29 are high school*
For those who are in high school what is their age group?	*Most of them are in junior high school 3 would be in senior high school.*

What do you think is the most important thing for learners with autism to learn?	*The most important with ASD to learn is around the core deficits that they have learning social communication learning they have to learn how to communicate in the most appropriate ways and optimize the way of communicating with people around them. The second skill that is very very important which is another core-deficit for people with ASD is they have to develop social competency skills if they could develop their social communication and social competency skills they have a far greater role to play in society.*
What are your responsibilities as psychologist regarding autistic learners?	*As school-based psychologist and I work for a government organization. I provide person-centred Direct, Indirect & Whole-school services. My services are divided into 3 different areas.* 4. *Student-Focused Indirect Services – To work with parents, teachers and school management in planning educational and behaviouralinterventions for their students* 5. *B. Student-Focused Direct Intervention – That means I work directly with the student either through conducting a psychological assessment and/or a therapeutic relationship, e.g., Cognitive Behaviour Training (CBT) – identifying thoughts, feelings and actions Sexuality Education Program, I teach students how to deal with bullying. I also teach children making friends, how to play things like that.* 6. *C. School-Wide Intervention – To support systemic and evidence-based teaching and behavioural approaches, e.g., whole-staff professional development in school-wide Positive Behaviour Support (PBS) & Response to Intervention (RtI) which is really great for the whole school. It is a lot of work but it's very important because if you train the parents, the students and the teachers same ways same direction*
Describe professional developments and specific training that you have facilitated regarding educating autistic learners.	*For people in the mainstream, I have done so each term for the past 8 years I have facilitated professional learning, for teachers and paraprofessionals who provide services to learners in regular schools. This is a new role for special schools, as they share their expertise with colleagues in the mainstream. Each term we choose a different topic. This term we talked about SPELL it's base on structure, positive approaches, evidence based approaches, empathy and understanding of the child (the child under the spectrum), as well as low levels of arousals and links to the community. The second term we spoke about IEPs and how to develop the most SMART goals we can. Third term we are going to look at other forms of literacy that we can do including behaviour training.*

Is adolescence too late for intervention to start?	*That's a difficult question because it's never too late to offer effective intervention. However,early intervention aims to improve the core behavioural symptoms of autism* and provides the learner with the best *life outcomes.It will provide the learner with instruction that will build on his or her strengths, to teach new skills, improve behaviours, and remediate areas of weakness. No matter at what age I think it's important to teach new skills although early intervention is better I think it's never too late to teach new skills.*
	Intervention, in my opinion, is always good – no matter what the age. Early intervention impacts on the neurology of the learner's brain – by altering brain activity, no matter what the age of the learner, due to current research in the plasticity of the brain. (This year, researchers delivered compelling evidence that the [Early Start Denver Model]*, an intensive early intervention program for people with autism, improves brain activity related to social responsiveness.) The crucial aspect in intervention, whatever the learner's age, is its efficacy in bringing about positive change – always ensuring the use of evidence-based intervention strategies.*
How would you support an adolescent to acquire social skills?	*Good social skills are important tools for day to day living - they help children navigate social interactions effectively and smoothly. The first step in developing effective social skills programming is an assessment of your child's social skills - both strengths and deficits. Successful ways to teach social competencies: Video modelling, and direct skill teaching, for example, Discrete Trial Training approaches, with Self-management – self-monitoring, then self-regulating; and teaching Functionally Equivalent Replacement Skills.*
Share a success story with me.	*Story of a 14- year-old learner with high functioning ASD, with a significant obsessive compulsive behaviour leading to inappropriate sexualized behaviours. What I did because I was working with a high functioning ASD and I was working with high levels of anxiety which led to very obsessive compulsive behaviour Using Cognitive Behaviour Training (CBT) – to provide ways for this young man to be able to learn to look at how he was thinking at then to look at how that made him feel and in turn how that brought about some of the high levels of anxiety and compulsiveness which came out in sexuality behaviours. With that I found out that the young man was able to deal with the particular issue and was able to learn a number of strategies to deal with his compulsive behaviour. To this stage he hasn't presented with any inappropriate behaviour.*
What strategies, services, and	*At one of the schools* (Name given) *the last two and half years*

programs do you highly recommend for autistic learners?	*we looked at evidence based strategies. International research has suggested that there are 24 very useful strategies for people with ASD. What I have done is continue to train our staff working with part of that comes from SPELL which I talked of earlier. The SPELL framework of teaching provides Structure, Positive Approaches, the Empathy of understanding from the learner's perspective, Low levels of arousal, and Links with trans-disciplinary specialists (SLTs, OTs, PT's and Psychs and music therapists) and the family. Twenty-four evidence-based strategies have been suggested, including antecedent-based interventions, computer-aided instruction, differentiated teaching, differential reinforcement schedules, social narratives (including social stories) and visual supports – all with highly predictable and structured learning environments, using TEACCH as a modality.*
My next question was going to be "Do you sometimes work directly with parents who have an autistic child?" but I think you answered it earlier in the previous questions.	*That's a very important question because I will tell you I always work collaboratively – parents are always an important part of the intervention team – strengthening the professional-family partnership. I believe that parents and professionals must be partners in providing the best intervention for the learner with autism – from the perspective of always promoting family involvement, including the siblings.*
What challenges do you meet when setting or trying to implement programs for autistic adolescents?	*Learned behaviours, over many years, may take longer to remediate. For typical teenagers as well because they have learnt over a long period of time. Also, teens have difficulty in self-regulating their emotions. Another challenge is when learners with autism develop mental health issues – we know that often in adolescence – with problems in attention, depression, obsessive-compulsive disorder, impulse- control, and mostly, high levels of anxiety. There is a lot of research and literature at the moment mainly from the UK that 86% of children with ASD have also mental health issues during most of them at teenage or adolescence. Those are the challenges that psychologists face at the moment*
What additional resources related to identifying and/or servicing learners with autism do you believe are needed in any secondary school?	*At one of the special schools (*name given) *the secondary studentsthe mostimportantresource that I started to provide for them and working with the teachers are to provide a functional skills curriculum to prepare the learner for their transition to adulthood in the most effective way, and trying to prepare the learner for adulthood and successful futures within their communities. While adolescence is a difficult time for most teens, it is especially tough for teens who struggle to understand ever-changing social expectations, have difficulty with social and pragmatic communication, and with a limited repertoire of skills to impact their learning styles.*

APPENDIX D: Teachers informed consent

Informed Consent

Dear Educator,

Permission for questionnaire:

Research project for dissertation of limited scope for MEd. in Inclusive Education at the University of South Africa (UNISA).

Research title: **Autism in Inclusive Education: The Employment of TEACCH in a Secondary School in Auckland New Zealand: A Case Study**

I, **Chipo Ngara**, hereby request your assistance in the completion of this questionnaire, which is a requirement for the completion of my Master's Degree in Inclusive Education, at the University of South Africa. As part of my MEd studies with UNISA, I am investigating The employment of TEACCH in an inclusive secondary school in Auckland.

In order to complete the requirements for the course, I have to become acquainted with various aspects of supporting autistic learners in inclusive settings. We value your skills and expertise in the education of learners with various abilities, and would therefore like to include you in this research project.

I am planning to obtain the necessary information for this research project through the use of questionnaires. Therefore I kindly request you to complete a questionnaire that will not take more than 15 minutes of your time.

Please note that your identity, all identifying information of the school, the names of the educators as well as your responses will be kept strictly confidential and will remain anonymous. I also assure you that I will not disturb the normal school routine with this project. There are no costs involved and no compensation will be given to participants in this research study.

You are free to withdraw your consent to participate and may discontinue your participation in the study at any time without consequence.

Any findings pertaining to this research study will be made available for your perusal should you wish to examine them.

I would greatly appreciate the positive consideration of my request to conduct my research study at your school.

If you have any doubts you are welcome to contact me at Contact details: i.ngara@xtra.co.nz +614 5947 0133, or my research supervisor Dr CS Gous-Kemp at tel +27 12 429 4888; cell 082 258 3441; fax 0866421624.

Thank you very much in anticipation of helping me to reach my goal.

_____   _____

ChipoNgara (Mrs)   **Dr GousKemp**M.Ed   Student
                         Research Supervisor

Please complete the following in order to confirm your willingness to participate in the research project:

I, _____ hereby give my informed consent to
participate in the above-mentioned research project.

Signed: _____   Date: _____
ChipoNgara

Signed: _____   Date: _____
Educator

AUTISM IN INCLUSIVE EDUCATION: THE EMPLOYMENT OF TEACCH IN A SECONDARY SCHOOL IN AUCKLAND NEW ZEALAND: A MULTIPLE CASE STUDY

QUESTIONNAIRE FOR SECONDARY SCHOOL EDUCATORS

The aim of this questionnaire is to determine the effectiveness of implementing TEACCH in a secondary school. The findings of this study will be used to help educators to use TEACCH effectively across the board.

The information obtained from this questionnaire will be treated confidentially. The data will be used for research purposes only.

INSTRUCTIONS:

1.   Kindly respond to all questions in black or blue ink. HB pencil can also be used.
2.   The questionnaire consists of three sections. Please answer all sections.
3.   Please indicate all responses by placing an x in the appropriate tick box.

The questionnaire queries the following aspects:

Section A: Biographical, demographic and personal information.
Section B: Questions related to teaching autistic learners and using intervention programs
Section C: Autistic learners and intervention programs

SECTION A : BIOGRAPHICAL AND DEMOGRAPHIC DATA

1. Gender

1	2
Male	**Female**

2. Age

1	2	3	4	5
21-26	**27 -32**	**33 - 38**	**39 - 44**	**45 and over**

3. How many years teaching experience do you have?

1	2	3	4	5
Less than 5 years	**5 - 10 years**	**11 – 15 years**	**16 – 20 years**	**More than 20 years**

4. How long have you been teaching in this school?

1	2	3	4	5
Less than 5 years	**5 - 10 years**	**11 – 15 years**	**16 – 20 years**	**More than 20 years**

5. How long have you been teaching learners with disabilities?

1	2	3	4	5
Less than 5 years	**5 - 10 years**	**11 – 15 years**	**16 – 20 years**	**More than 20 years**

6. Please indicate your highest teaching qualification.

1	2	3	4	5
Diploma	Bachelors degree	Post Graduate Diploma	Masters degree	Beyond Masters

7. How prepared do you feel in educating learners with autism in your classroom?

1	2	3	4	5
Highly qualified	Moderately qualified	Very experienced	Both highly qualified and very experienced	Not qualified

8. Did you have any formal training on how to work with children with autism?

1	2
Yes	No

9. How many learners do you teach who have autism or are suspected of having autism?

1	2	3	4	5
1	**2**	**3**	**4**	**More than 5**

Directions:

Please consider each statement carefully and give your honest opinion. Indicate your preference by placing a tick in the appropriate box.

CODE
DS = Disagree strongly
D = Disagree
N = Neutral – neither agree nor disagree
A = Agree
AS = Agree strongly

SECTION B : Questions related to teaching autistic learners and using TEACCH

10. I am familiar with TEACCH (Treatment and education of autistic and related communication-handicapped children).						
	1	**2**	**3**	**4**	**5**	
	DS	**D**	**N**	**A**	**AS**	
Never heard of it						
Have heard about it						
A little familiar						
Familiar						
Very familiar						

11. Rate your confidence in teaching autistic learners.						
	1	**2**	**3**	**4**	**5**	
	DS	**D**	**N**	**A**	**AS**	
Not sure						
Not confident						
Minimally confident						
Moderately confident						
Highly confident						

12. If I had a choice I would use -- for teaching autistic learners mostly.						
	1	**2**	**3**	**4**	**5**	
	DS	**D**	**N**	**A**	**AS**	
ABA (Discreet Trial Training)						
Floor time						
TEACCH						
Sensory Integration						
Other						

13. **What is your opinion regarding implementing programs for autistic learners in an inclusive classroom?**

	1	2	3	4	5
	DS	D	N	A	AS
Not sure					
Not practical					
A little practical					
Practical					
Very practical					

14. **Do you work with other staff members who are designated to exclusively serve children who experience barriers to learning in your school?**

	1	2	3	4	5
	DS	D	N	A	AS
Never					
Rarely					
When a need arises					
Often					
Everyday					

15. **What has been the most difficult part of teaching autistic learners? (Tick as many as possible)**

	1	2	3	4	5
	DS	D	N	A	AS
Their behaviour					
Their inability to communicate effectively					
Lack of teacher aide support					
The learner's inability to read visuals					
The time involved in implementing programs for them					
Lack of support from family					
Lack of support from other team members					
Lack of continuity or use by other teachers					

16. **What has been the most difficult part of implementing other programs that help learners with autism for you? (Tick as many as possible)**

	1	2	3	4	5
	DS	D	N	A	AS
Lack of teacher aide support					
The time involved in implementing it					
Lack of support from family					
Lack of support from other team members					
Lack of continuity or use by other teachers					
Lack of students' interest					
The time involved in implementing the programs					

17.   Is adolescence too late for intervention to start?

	1	2	3	4	5
	DS	D	N	A	AS
Not sure					
It is late					
It is too late					
Not late					
Never too late at all					

18. What challenges does the school meet when setting or trying to implement programs for autistic adolescents?   (Tick as many as possible)

	1	2	3	4	5
	DS	D	N	A	AS
Lack of understanding by the adolescents					
The adolescents become ashamed of undergoing some programs					
Parents thinking that their child does not the program					
Other adolescents' attitude towards the autistic adolescent					
Lack of support from other team members					

19. What do you think would be the best thing to do in order to improve or enhance the implementation of programs for autistic learners?

………

………

……………………………………………………………………………………

Section C: Autistic learners and intervention programs

20. What areas (aspects of learner development) would you like to see the biggest improvements as far as autistic learners are concerned?

....

....

21. The skills that learners with autism obtained through using the intervention programs will be of help to them in later life.

	1	2	3	4	5		
	DS	D	N	A	AS		
Never							
Rarely							
Not sure							
Often							
Everyday							

22. You may add a comment to elaborate on question 21

    ……

    ……

23. What do you think is the single most important thing for learners with autism to learn?

    ……

    ……

24. What do you consider to be the most important components of a successful educational program for learners with autism?

    ……

    ……

25. What do you feel makes an educational program for learners with autism successful?

    ……

    ……

    ……………………………………………………………………………………………………

26. You may add a comment on any aspect regarding autistic learners and intervention programs that you know.

    ……

    ……

AUTISM IN INCLUSIVE EDUCATION: THE EMPLOYMENT OF TEACCH IN A SECONDARY SCHOOL IN AUCKLAND NEW ZEALAND: A CASE STUDY

QUESTIONNAIRE FOR OUTREACH TEACHERS

The aim of this questionnaire is to determine the effectiveness of implementing TEACCH in a secondary school. The findings of this study will be used to help educators to use TEACCH effectively across the board.

The information obtained from this questionnaire will be treated confidentially. The data will be used for research purposes only.

INSTRUCTIONS:

Kindly respond to all questions in black or blue ink. HB pencil can also be used.

The questionnaire consists of three sections. Please answer all sections.

Please indicate all responses by placing an x in the appropriate tick box.

The questionnaire queries the following aspects:

Section A: Biographical, demographic and personal information.

Section B: Questions related to teaching autistic learners and using TEACCH

Section C: Autistic learners and TEACCH

SECTION A : BIOGRAPHICAL AND DEMOGRAPHIC DATA

1.   **Gender**

     1   2

Male	Female

2.   **Age**

   1   2   3   4   5

21-26	27 -32	33 - 38	39 - 44	45 and over

3.   **How many years teaching experience do you have?**

   1   2   3   4   5

Less than 5 years	5 - 10 years	11 – 15 years	16 – 20 years	More than 20 years

4.   **How long did you teach learners with disabilities before doing outreach services?**

   1   2   3   4   5

Less than 5 years	5 - 10 years	11 – 15 years	16 – 20 years	More than 20 years

5.   **How long have you been outreach services?**

   1   2   3   4   5

Less than 5 years	5 - 10 years	11 – 15 years	16 – 20 years	More than 20 years

6.   **Please indicate your highest teaching qualification?**

   1   2   3   4   5

Diploma	Bachelors degree	Post Graduate Diploma	Masters degree	Beyond Masters

7.   **How prepared do you feel in conducting your services to learners with autism?**

   1   2   3   4   5

Highly qualified	Moderately qualified	Very experienced	Both highly qualified and very experienced	Not qualified

Directions:

Please consider each statement carefully and give your honest opinion. Indicate your preference by placing a tick in the appropriate box.

CODE

DS = Disagree strongly

D = Disagree

N = Neutral – neither agree nor disagree

A = Agree

AS = Agree strongly

SECTION B : Questions related to teaching autistic learners and using TEACCH

8. I have had training on how to work with autistic learners through	1	2	3	4	5	
	DS	D	N	A	AS	
Reading from the internet						
School professional developments						
Cluster Workshops						
Teacher training						
In service training						

9. I have -- learners who have autism or are suspected of having autism in my group.	1	2	3	4	5	
	DS	D	N	A	AS	
1						
2						
3						
4						
More than 5						

10. **Rate your confidence in using TEACCH.**

	1	2	3	4	5
	DS	D	N	A	AS
Not sure					
Not confident					
Minimally confident					
Moderately confident					
Highly confident					

11. **How confidence are you in facilitating a TEACCH PD to a group of educators?**

	1	2	3	4	5
	DS	D	N	A	AS
Not sure					
Not confident					
Minimally confident					
Moderately confident					
Highly confident					

12. **I would recommend -- for teaching autistic learners mostly.**

	1	2	3	4	5
	DS	D	N	A	AS
ABA (Discreet Trial Training)					
Floor time					
TEACCH					
Sensory Integration					
Other					

13. What is your opinion regarding the use of TEACCH in inclusive classrooms?

	1	2	3	4	5	
	DS	D	N	A	AS	
Not sure						
Not practical						
A little practical						
Very practical						
Highly practical						

14. Do you work with other staff members who are designated to exclusively serve children with ASD in your school?

	1	2	3	4	5	
	DS	D	N	A	AS	
Never						
Rarely						
When a need arises						
Often						
Everyday						

15. What feedback have you had as the most difficult part of implementing TEACCH in an inclusive setting? (Circle as many as possible)

	1	2	3	4	5	
	DS	D	N	A	AS	
Making visuals						
Losing the visuals						
Lack of teacher aide support						
The learner's inability to read visuals						
The time involved in implementing it						
Lack of support from family						
Lack of support from other team members						
Lack of continuity or use by other teachers						

16.   What has been the most difficult part of implementing other programs that help learners with autism, for you? (Tick as many as possible)

	1	2	3	4	5
	DS	D	N	A	AS
Lack of teacher aide support					
The time involved in implementing it					
Lack of support from family					
Lack of support from other team members					
Lack of continuity or use by other teachers					
Lack of students' interest					
Having to deal with new teachers frequently					
The time involved in implementing the programs					

17   Is adolescence too late for intervention to start?

	1	2	3	4	5
	DS	D	N	A	AS
Not sure					
It is late					
It is too late					
Not late					
Never too late at all					

18. What challenges do you meet when setting or trying to implement programs for autistic adolescents?   (Tick as many as possible)

	1	2	3	4	5	
	DS	D	N	A	AS	
Lack of understanding by the adolescents						
The adolescents become ashamed of undergoing some programs						
Parents thinking that their child does not need the program						
Other adolescents' attitude towards the autistic adolescent						
Lack of support from other team members						

19. What do you think would be the best thing to do in order to improve or enhance the implementation of TEACCH?

....

....

....

Section C: Autistic learners and TEACCH

20. The (skills that learners with autism obtained through using the TEACCH program) TEACCH skills learners with autism get at school will be of help to them in later life.

	1	2	3	4	5	
	DS	D	N	A	AS	
Never						
Rarely						
Not sure						
Often						
Everyday						

21. You may add a comment to elaborate on question 18
………
………
…………………………………………………………………………………………

22. What areas (aspects of learner development?) have you seen the biggest improvements in since the TEACCH program started?
………
………
………………………………………………………………………………………………

23. What do you think is the single most important thing for autistic learners to learn?
………
………
……………………………………………………………………………………………………

24. What do you consider to be the most important components of a successful educational program for autistic learners?
………
………
………………………………………………………………………………………………………

25. What do you feel makes an educational program for autistic learners successful?
………
………
……………………………………………………………………………………………………

26. You may add a comment on any aspect regarding autistic learners and TEACCH.
………
………
………………………………………………………………………………………………

RE: INFORMED CONSENT

Dear Parent

I, **Chipo Ngara**, am currently registered for the Master in Education (Specialising in Inclusive Education) at the University of South- Africa. I am in the process of writing a dissertation under the supervision of Dr Gous Kemp. The title of my research is*: **Autism in Inclusive Education: The Employment of TEACCH in a Secondary School in Auckland New Zealand: A Case Study***.This study will however benefit our (parents, teachers and other adults working with autistic children) understanding of how they can manage their daily activities without being stressed.

The study aims to obtain an in-depth understanding of how autistic learners' opportunities for learning are increased by the employment of TEACCH.

I am asking for your willingness to take part in the research study in order to help me with information that is needed for the successful completion thereof. There are no costs involved and no compensation will be given to participating parents in this research study. Your participation in the study is at all times voluntary. Should you at any point during the study, experience an emergency as a result of the study or require any further information regarding the study, feel free to contact me on the number listed below.

You have been selected to participate in this study as you have a child who is currently in high school between the ages of 15 and 16, and was identified as having autism. You will be asked to complete a questionnaire together with about 4 other parents.

All information gathered in the research study will be treated as strictly confidential at all times, and will only be accessible to the researcher and the supervisor, Dr Gous Kemp.

I do not expect any risks or discomfort associated with this study. However should you wish to withdraw you may withdraw at any stage during the research process.

The questions will look into your experiences as a parent whose child was identified as having autism. You are encouraged to answer questions but you do not need to answer particular questions if you do not wish to and you can withdraw at any time.

The final report of the study will be made available to those participants who wish to read it.

If you have any doubts you are welcome to contact me at Contact details: i.ngara@xtra.co.nz +614 5947 0133, or my research supervisor Dr CS Gous-Kemp at tel +27 12 429 4888; cell 082 258 3441; fax 0866421624.

Thank you very much in anticipation of helping me to reach my goal.

_____   _____

Chipo Ngara (Mrs)
M.Ed   Student

Dr Gous Kemp
Research Supervisor

_____

Please complete the following in order to confirm your willingness to participate in the research project:

PARENT PERMISSION AND ACCEPTANCE

This is to confirm that I (name and surname) ....… give consent to participate in this study. I hereby confirm that this research study has been explained to me. I also understand that I can withdraw from the study at any time.

Signature of parent: .... Date:......................................

Researcher:...Date: ……………………………

Research title: **Autism in Inclusive Education: The Employment of TEACCH in a Secondary School in Auckland New Zealand: A Case Study**

QUESTIONNAIRE FOR PARENTS

The aim of this questionnaire is to determine the effectiveness of implementing TEACCH in a secondary school. The findings of this study will be used to help educators to use TEACCH effectively across the board.

The information obtained from this questionnaire will be treated confidentially. The data will be used for research purposes only.

INSTRUCTIONS:

Kindly respond to all questions in black or blue ink. HB pencil can also be used.

Directions:

Please consider each statement carefully and give your honest opinion. Indicate your preference by placing a tick in the appropriate box.

CODE

DS   =   Disagree strongly

D   =   Disagree

N   =   Neutral – neither agree nor disagree

A   =   Agree

AS   =   Agree strongly

1.   **Your age**

	1	2	3	4	5

21-26years	27 -32	33 - 38	39 - 44	45 and over

2.   How old is your child?   --------- Years
3.   How long has your child been at this school? --------- Years

4.	How familiar are you with TEACCH (Treatment and education of autistic and related communication-handicapped children)?						
		1	**2**	**3**	**4**	**5**	
		DS	D	N	A	AS	
Never heard of it							
Have heard about it							
A little familiar							
Familiar							
Very familiar							

5.	**If you have heard of TEACCH, what is your opinion regarding its use at home?**						
		1	**2**	**3**	**4**	**5**	
		DS	D	N	A	AS	
Not sure							
Not practical							
A little practical							
Practical							
Very practical							

6. **I became aware of TEACCH through**

	1	2	3	4	5
	DS	D	N	A	AS
The internet					
The school					
Autism New Zealand					
A friend					
Reading a book about autism					

7. **The most difficult part of implementing TEACCH at home is -- (Tick as many as possible)**

	1	2	3	4	5
	DS	D	N	A	AS
Making visuals					
Losing the visuals					
Lack of support from school					
My child's inability to read visuals					
The time involved in implementing it					
Lack of support from family					
Lack of continuity when my child goes to respite care					

8.   What were your child's biggest challenges before beginning TEACCH?
         ……………………………………………………………………………………

9.   What areas have you seen the biggest improvement in since beginning TEACCH?
         …………………………………………………………………………………..

10.   Which would you consider to be the best program to educate children with autism?
         ....

11.   Did you get help from the school or any other specialists on how to use an intervention program?
              Yes   No

12.   How many staff members are designated to exclusively serve your child?

13.   Which government organizations are they from?

....

14.   What do you think is the most important thing for your child to learn?

………

……………………………………………………………………………………………

15.   What are your child's strengths?

………

……………………………………………………………

16.   Do you feel that you are getting enough support from the school as far as implementing TEACCH is concerned?

Yes   No

If your answer for question 15 is No, what extra support do you think the school should provide?

………

……………………………………………………………………………………

APPENDIX E2; Parents' responses

Questions	Parent 1	Parent 2	Parent 3
What were your child's biggest challenges before beginning TEACCH?	*Screaming and lots of tantrums*	*Meltdowns*	*Going through chores*
What areas have you seen the biggest improvement in since beginning TEACCH?	*My child is calmer.*	*He is a bit independent with daily and morning routines.*	*He is more organised.*
Which would you consider to be the best program to educate children with autism?	*TEACCH and ABA*	*A combination of different programs*	*A program that lays out procedure*
Did you get help from the school or any other specialists on how to use an intervention program?	*Yes*	*Yes. When my child was in primary school I used to get a lot of help.*	*Yes*
How many staff members are designated to exclusively serve your child?	*Not sure I know there is a speech pathologist and an occupational therapist*	*Currently I am not sure, I know he gets a few hours per day of teacher aide support.*	*I don't know*
Which government organizations are they from?	*Not sure*	*Education*	*No idea - education*
What do you think is the most important thing for your child to learn?	*Social skills*	*As a teenager – social skills*	*Communication, social skills and behaving appropriately*
What are your child's strengths?	*He likes his room very tidy.*	*Computers*	*He is good with computers and puzzles.*
Do you feel that you are getting enough support from the school as far as implementing TEACCH is concerned?	*No*	*No – not of late*	*Not any more*
If your answer for question 16 is No, what extra support do you think the school should provide?	*I used to get a lot of support may be they feel we do not need it any more.*		*Not sure at the moment*

APPENDIX F: New Zealand Ministry of Education Copyright

APPENDIX G: School Deciles

How the decile is calculated

How the decile is calculated

Information on the method the Ministry of Education uses to calculate school deciles.

A major reassessment of all school deciles is undertaken following each 5-yearly Census of Population and Dwellings. In intervening years, schools can apply for a review of their decile on the basis of perceived change in the socio-economic status (SES) of students in a school's catchment.

A school's decile indicates the extent to which the school draws its students from low socio-economic communities. Decile 1 schools are the 10% of schools with the highest proportion of students from low socio-economic communities, whereas decile 10 schools are the 10% of schools with the lowest proportion of these students. A school's decile does not indicate the overall socio-economic mix of the school.

Census information is used to calculate the decile. A school provides its student addresses and these are used to determine which areas its students come from.

The student addresses are assigned to the smallest Census areas, called meshblocks. A meshblock contains around 50 households. However, only Census information for households with school-aged children is used. The number and percentage of students from each meshblock is determined and the meshblock is examined against five socio-economic factors.

Note: It is not the general area around the school that is used to calculate the decile, but the specific meshblocks where students live.

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The five factors that make up the socio-economic indicator:

1. **Household income** - the percentage of households with equivalent income (ie adjusted for the number of adults and children in the household and the age of the children) in the lowest 20% nationally. Households with a member who is employed are usually not included in this group nor are all households supported by a benefit (since more than 20% of families are dependent on a benefit).

2. **Occupation** - the percentage of employed parents in occupations that are at skill levels 4 or 5 (of the 1 to 5 levels of the Australia and New Zealand Standard Classification of Occupations ANZSCO). These include all labourers, all machine operators and assemblers, and others who work in occupations at these lower skill levels irrespective of the sector/ type/ profession involved.

3. **Household crowding** – the percentage of households with an equivalized crowding index greater than one. This index is the proportion of household members per bedroom adjusted for the presence of children under 10 years of age, every two of whom are assigned to share a bedroom; couples, and others are each assigned their own bedroom.

4. **Educational qualifications** - the percentage of parents with no tertiary or school qualifications.

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5. **Income support** - the percentage of parents who directly (ie not as a partner) received a Domestic Purposes Benefit, Unemployment Benefit or Sickness and Invalid's Benefit in the previous year. This does not include parents receiving Family Support.

Census information is used to calculate these factors for each meshblock. The ministry does not have access to the individual Census information, only the information for the meshblock as a whole which it accesses in confidence through Statistics New Zealand.

The five census factors are weighted by the number of students from each meshblock. This means that meshblocks where only a few of a school's students live will have little impact on its decile, while those having more will have a greater impact etc.

Schools are ranked in relation to every other school for each of the five factors and receive a score according to the percentile that they fall into. The five scores for each school are added together (without any weightings) to give a total. This total gives the overall standing of a school in relation to all other schools in the country, enabling the ministry to place schools into ten groups called deciles, each having the same number of schools.

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Reviews of deciles

Deciles may be reviewed annually on the basis of perceived change in the socio-economic status (SES) of students in a school's catchment. This may involve a change in the shape of the catchment (which may be associated with a SES change) and/or a change in SES without apparent catchment change.

The Ministry of Education advertises the review process in the Education Gazette around August of each year with application forms available by contacting the sponsor. A school applying for a review must state whether their case is one of physical catchment change and/or SES change without physical catchment change.

When applying for a review under the physical catchment change criteria, a school must supply the addresses for all of its students. The five factors for the school are then calculated using the Census method described earlier.

If a school is applying for a review under the change in SES, it must survey the households of the students to gain the information needed to calculate the five factors for the school. This calculation is independent of the Census.

A school may apply on both grounds. In this situation, it must supply both address information and survey results.

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Document Actions

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Part 4: Allocating resources for supporting students

Ministry of Education: Managing support for students with high special educational needs.

4.1

In this Part, we set out our findings about how the Ministry:

- allocates funding and resources to support students;

- makes sure that students receive timely support; and

- trains and supports its staff who provide support for students.

Summary of our findings

4.2

The Ministry pools funding for ORRS and School High Health Needs Fund nationally, and distributes it to districts for allocation to students. For the Severe Behaviour and Speech Language Initiatives, districts receive funding allocations based on the total student population of each district. The allocations may not match the level of need in a particular district.

4.3

The Ministry had processes for allocating resources and funding to students. These processes and the timeframes for providing services varied across and within the districts we visited. Managing the balance of teacher aide hour allocations for ORRS and the School High Health Needs Fund was putting pressure on some district budgets. The Ministry was implementing a National Moderation Plan to achieve better consistency in its approach to the ORRS and School High Health Needs Fund allocation process. The Ministry was also implementing processes for more timely delivery of its services for Severe Behaviour Initiative and Speech Language Initiative support.

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4.4

Staff capacity problems in some districts caused significant delays in providing Severe Behaviour Initiative and Speech Language Initiative support to students. The Ministry was working to improve this through closer contact with schools and RTLBs, and also improving its waiting list data. Ministry staff received regular and appropriate training.

4.5

We have made four recommendations in this Part, for the Ministry to improve:

- the consistency with which districts allocate and moderate ORRS and School High Health Needs Fund teacher aide hours;

- the timeliness with which students receive services;

- its checking of the integrity of its waiting list data; and

- its management of staff capacity.

Allocating funding and resources to students

At the time of our audit, the Ministry's approach to allocating funding and resources to students receiving support through the four initiatives was not nationally consistent. This meant students with similar needs and circumstances could receive different levels of support in different parts of the country.

Ongoing and Reviewable Resourcing Schemes and the School High Health Needs Fund

4.6

When students are verified as eligible for ORRS and the School High Health Needs Fund, they generate a set funding figure. The Ministry pools this funding, and allocates some funding directly to "fund holder" schools.

4.7

The rest is allocated to the Ministry's district offices. Each district office then allocates funding to students who are assessed as eligible and enrolled at schools in its district. This funding is for specialist services, teacher aide hours, and extra resources and materials.

4.8

Districts receive weekly notification from the Ministry's national office, confirming which students are to receive ORRS and School High Health Needs Fund support. District offices then allocate and co-ordinate specialist Ministry staff and teacher aide hours according to staff capacity and the student's level of need.

4.9

The individual circumstances of the student are also considered, such as whether resources are already in place in the school for other students with high special educational needs, the degree of

support from the student's family, and the student's current learning needs. In districts we visited, the allocation occurred through regular team meetings, or was decided by the service manager, or was agreed at meetings that included staff from different service centres within a district.

4.10

Most of the district funding for ORRS students (70%), and all of the funding for School High Health Needs Fund students, is made as a contribution to funding teacher aides to support the student in the classroom.[12] The funding supports an estimated 17.5 teacher aide hours each week for a student with very high needs, and an estimated 10 teacher aide hours each week for a student with high needs (for both ORRS and the School High Health Needs Fund). The hours are then pooled at a district level.

4.11

The teacher aide hours are allocated by district offices to students each year (usually in October or November) for the next calendar year. This occurs through the Ministry's rating and allocation process (known as "moderation"), which includes these steps:

- schools submit requests for teacher aide hours to the Ministry based on the needs of the student, and with the help of the lead caseworker;[13]

- these requests are considered by a team who assess each student's learning, sensory, and physical needs using the Ministry's national descriptors and rating scale, which generates the number of teacher aide hours the student is likely to need;

- the Ministry district moderation panel considers the individual student's current needs and circumstances, and decides whether the student needs fewer or more hours than the rating scale has indicated; and

- regional moderation meetings compare allocations between districts (further adjustments may then be made by districts).

4.12

Students who need fewer hours are called "unders" and those who need more are called "overs". This process allows the district to balance the level of resource for individual students against the regionally moderated level of resource for students with that level of need and in similar circumstances.