Cape Peninsula
University of Technology

A LEARN-TO-DRESS STORYBOOK IN CONJUNCTION WITH A PRACTICAL AND FUNCTIONAL CHILDREN'S WEAR RANGE: TO AID CHILDREN WITH AUTISM

by

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Cape Town
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DECLARATION

I, Nabeela Moosa, declare that the contents of this dissertation represent my own unaided work, and that the dissertation has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessarily those of the Cape Peninsula University of Technology.

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1. Definitions of Key Terms and Concepts

- **AIDS:** Acquired Immunodeficiency Syndrome

- **Autism:** "an abnormal tendency to withdraw into a private world to such an extent that normal human communication is impossible" (Manser (ed.), 2001: 60).

- **Atypical Development:** "reference to an 'abnormal' child's development" (Kearns, 2010).

- **Child Psychology:** "is a branch of human psychology that deals with the study of the mental, emotional, and behavioural development of children" (Vasta *et al.*, 1995: 4).

- **Developmental Disorders:** "is the serious impairment in several areas, including physical, behavioral, cognitive, social, and language development" (Case-Smith, 2005: 54).

- **Diagnosis:** "the art or act of identifying a disease from it's signs and symptoms" (Case-Smith, 2005: 33).

- **Fine Motor Skills:** "the use of the hands as tools for such things like eating, building, and exploring" (Vasta *et al.*, 1995: 183).

- **Gross Motor Skills:** "the movement of an individual's body, arms and legs" (Vasta *et al.*, 1995: 183).

- **Impairment:** "to damage or make worse by or as if by diminishing in some material respect" (Case-Smith, 2005: 658).

- **Occupational Therapy:** "a type of therapy designed to assist recovery from illness or injury by exercising the mind and muscles with handicrafts, painting, etc." (Manser (ed.), 2001: 690).

- **Psychology:** "the study of mind and behavior in relation to a particular field of knowledge or activity" (Case-Smith, 2005: 35).

- **Social Engagement:** "the interaction of the individual and the group" (Volkmar, 1998: 2).

- **Stages of Development:** "a sequence of stages in child development that follow a pattern of equilibrium and disequilibrium interweaving in a steady progression to maturity" (Case-Smith, 2005: 63).

- **Typically Developing:** "reference to a 'normal' child's development" (Kearns, 2010).

2. Introduction

2.1 The Setting

Observing and interacting with a child with autism for one month, while travelling overseas, inspired my research topic of childhood autism. I observed that the child displayed typical symptoms of autism and how these symptoms affected the child's way of life as well as that of his parent's and sibling's. Many overlook the hard work, dedication and patience of the parents with an autistic child. I decided to explore ways to alleviate some of the stress and pressure experienced by parents, with an autistic child, thus improving their quality of life.

The Department of Health in the Western Cape has reported an estimated increase in autism of 500% over the past five years. Currently, one in every one hundred and fifty eight children are born with autism in South Africa, making autism more common than paediatric cancer, diabetes and AIDS combined (Autism Western Cape: 2010). Autism affects people worldwide, from all racial, ethnic and socio-economic backgrounds. The rapid growth rate in autism all over the world has raised concerns amongst scientists and researchers who attempt to find the possible causes as well as a cure for this disorder. In South Africa, there are numerous organisations with the main objective to raise awareness about this disorder, helping parents, teachers, and therapists with any information they might need when caring for a child with autism.

I intended to conduct my investigation at the Alpha School for children with autism, which is situated in Woodstock, Cape Town. After informal interviews were conducted with a parent of a child with autism as well as a teacher at the Alpha School, the major key result was that children struggled to clothe themselves due to their fine motor skill difficulties. In addition children at the age of eight, were not able to identify the front from the back of the garment. Other complaints were that the current South African children's clothing wear market does not offer practical and comfortable clothing for children with autism. Thereby children often either refuse to dress entirely, or repeatedly complain about details, such as the label, or the fabric the garment is made of, that irritates them. The mentioned results were confirmed by my own observations whilst I travelled overseas and these key results assisted me to establish the objectives of my research.

The objectives of this research is to improve these fine motor difficulties by exposure to a practical and functional children's wear range in conjunction with an interactive Learn-to-Dress storybook to enable them to dress by themselves. This will promote the use of their hands, ultimately helping in the development of their fine motor skills. Despite studies that

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suggest the potential usefulness of storybooks as a teaching tool, current literature does not reflect research on the use of interactive storybooks in teaching children a specific skill, which is to clothe themselves, ultimately improving their fine motor skills.

2.2 The Research Question

Could a child's motor difficulties be improved by the utilisation of an interactive Learn-to-Dress storybook in conjunction with a matching outfit?

2.3 The Sub-Questions

- What does the condition autism mean, and how does it affect children?

- What are the physical developmental difficulties children with autism experience, and how are these challenges currently being addressed within South Africa?

- How can a practical and functional children's-wear range be produced with an interactive Learn-to-Dress storybook, and how could it aid in the improvement of fine motor skills?

3. Literature Review

The literature review will include a brief history of child psychology, autism, and the Social Development Theory by Lev Vygotsky, which will add knowledge to this research study.

3.1 Child Psychology

Children were perceived as preformed adults up until the seventeenth-century. At the age of six or seven, children were regarded as entering adulthood and were engaged in adult forms of work and social interaction (Nadesan, 2005: 55). It was only in the seventeenth-century that writer John Locke suggested that children might be qualitatively different to adults, and stressed the role of education as transforming children into young adults (Nadesan, 2005: 56).

There was great interest in childhood development during the nineteenth century. Psychologist Stanley Hall has been credited with founding the field of childhood developmental psychology. Hall's theory stipulated that proper education was necessary for children to acquire the needed skills at each developmental stage (Nadesan, 2005: 59). In 1911, Arnold Gesell's work was influenced by Hall's approach of studying the *"stages"* of child development. Gesell conducted large-scale studies examining children's behaviour in great detail. He concluded that all children, even though they did not develop at the same rate, followed the same pattern of development, for example, almost all children walked before they ran, ran before they skipped, and skipped before they hopped (Vasta *et al.*, 1995: 20). From his work, Gesell established measures or guidelines for evaluating developmental progress in typically and atypically developing children. These measures continue to be revised and are used today.

3.2 Autism

In 1943, child psychiatrist Dr Leo Kanner first described children with autism as having *"a profound lack of social engagement"* (Volkmar, 1998: 2). Dr Kanner also observed a number of unusual behaviours in these children including a *"desire for sameness"*, and *"isolated areas of interest"* (Frith, 1989: 10). According to Fred Volkmar, Professor at Yale University, Kanner's description of autism remains a valuable contribution to psychiatry and has influenced the work of generations of professionals since its publication.

Currently, accepted definitions of autism include three main criteria that have to be met for a diagnosis to be made. These are; *"severe restriction in the ability to reciprocate socially"*,

"severe restriction in the ability to communicate reciprocally", and *"severe restriction in the ability to vary behaviour and to engage in imaginative activities"* (Aicardi, 2009: 902).

3.3 The Social Development Theory

The Social Development Theory (Social Learning Theory) by Lev Vygotsky will provide the theoretical framework for this research study. Vygotsky believed that an individual's mental development is influenced by his or her culture (Vasta *et al.*, 1995: 23). In other words, abilities such as thought, language, and reasoning processes were believed to develop through social interactions with their environment. These interactions include those with parents and teachers, playmates and classmates, and brothers and sisters (Leong & Bodrova, 2001). Vygotsky referred to learning as *"a relatively permanent change in behaviour that results from practice or experience"* (Vasta *et al.*, 1995:41).

This theory will be used in support of the utilisation of the interactive Learn-to-Dress storybook to teach the child the specific skill to dress themselves.

4. Research Design and Methodology

Qualitative methods were used to investigate and gather information to be able to answer the research questions. I will give a brief overview of the research questions and state the qualitative methods used.

4.1 What does the condition autism mean, and how does it affect a children?

By answering this sub-question, I will create a theoretical foundation for this research effort. Thereby I will understand the disorder better, as well as the challenges children with autism have to deal with.

Methods

- Secondary research: I will extensively research books, journals and databases on autism and the effects thereof.

- Primary research: I will conduct interviews with parents, occupational therapists, and teachers.

4.2 What are the physical developmental difficulties children with autism experience, and how are these challenges currently being addressed within South Africa?

The answer of this sub-question will assist to gain insight into the physical development difficulties and current interventions used in South Africa. This will form the practical component of the study.

Methods

- Primary research: I will conduct interviews with parents, occupational therapists, and teachers.

4.3. How can a practical and functional children's-wear range be produced with an interactive Learn-to-Dress storybook, and how could it aid in the improvement of fine motor skills?

The answer to this sub-question will be to test the assumption that an interactive Learn-to-Dress storybook will improve the child's fine motor skills.

Methods

- Primary research: I will conduct interviews with parents and teachers.

- Test the products to gain knowledge and feedback about the potential benefits of the product.

5. Objectives of the Research

The objective of this study is to add value to their lives by improving fine motor skill development in children with autism.

6. Delineation of the Research

I intend to conduct my research at the Alpha School based in Woodstock, Cape Town. I will focus on boys and girls between seven and ten years.

7. Summary

During the past five years, autism, increasing in numbers, have steadily moved to the forefront of developmental disabilities because of the impact these impairments have on the child's immediate and long-term academic and social success. The dramatic increase is evident and supported by statistics, which show that one in every one hundred and ten children in South Africa is born with autism. The proposed objectives of this research are to assist these children to improve their fine motor skills.

8. Schedule

Week:

6-9 April	- Discuss deadlines and what is expected for Theory and Practical
12-16 April	- Theory: Work on Proposals and Chapter 1 of Dissertation - Practical: Work on Designs - Work on basic blocks - Work on 2 sample outfits, 1 boy 1 girl, for Alpha School
19-23 April	- Theory: Work on and finalise Proposal - Work on Chapter 1 and Chapter 2 - Consult with Avryl about Chapter 1 - Practical: Finalise Designs - Find Illustrations - Work on layout of boards - Consult with Bryan and Maryna - Work on basic blocks - Work on samples for Alpha School - Source Fabrics and Trimmings
26-30 April	- Theory: Correct Chapter 1 and work on Chapter 2 - Consult with Avryl about Chapter 2 - Practical: Start with 6 Illustrations - Consult with Bryan and Maryna - Work on outfit 1, TD, Pattern and Mock-up - Meeting at Alpha School - Source Fabrics and Trimmings - Business: Start working on report (Research)
3-7 May	- Theory: Correct Chapter 2 and work on Chapter 3 - Practical: Complete 6 Illustrations - Work on outfit 1, TD, Pattern and Mock-up - Source Fabrics and Trimmings - Business: Research for report
10-14 May	- Theory: Consult with Avryl about Chapter 3 - Correct Chapter 3 - Practical: Work on boards - Consult with Bryan and Maryna - Work on outfit 2, TD, Pattern, and Mock-up

	- Source Fabrics and Trimmings - Business: Research for report
17-21 May	- Practical: Work on and complete boards - Consult with Bryan and Maryna - Work on outfit 2, TD, Pattern, and Mock-up - Business: Research for report
24-28 May	- Theory: Hand in Chapters 1, 2 and 3 on the 25th - Practical: Hand in 6 Boards -Business: Complete for the 1st of June - **MODERATION**
	JUNE BREAK
12-16 July	- Practical: Consult with Bryan about Boards
19-23 July	- Practical: Complete patterns and mock-ups for girlswear
26-30 July	- Theory: Consult with Avryl about Chapters 1 to 3 - Practical: Complete patterns and mock-ups for girlswear - Business: Start with assignment
2-6 August	- Theory: Work on chapters 1 to 3 - Consult with Avryl - Practical: Complete Girlswear - Start with basic blocks for boyswear - Work on boards - Business: Work on assignment
9-13 August	- Theory: Chapters 4, 5 - Practical: Complete Girlswear - Start patterns for boyswear - Work on all boards - Business: Work on assignment
16-20 August	- Theory: Chapters 4, 5 - Consult with Avryl - Practical: Complete Girlswear - Work on boyswear - Work on all boards

	- <u>Business</u>: Work on assignment
23-27 August	- **<u>MODERATION</u>**
30-3 September	ONE WEEK BREAK
6-10 September	- <u>Theory</u>: Complete and finalise dissertation - <u>Practical</u>: Work on patterns and mock-ups for boyswear
13-17 September	- <u>Theory</u>: Complete and finalise dissertation - Consult with Avryl - <u>Practical</u>: Work on patterns and mock-ups for boyswear
20-24 September	- <u>Theory</u>: Complete and finalise dissertation - <u>Practical</u>: Work on patterns and mock-ups for boyswear
27-1 October	- <u>Theory</u>: Work on Dissertation - <u>Practical</u>: Complete boyswear - <u>Business</u>:
4-8 October	- <u>Theory</u>: Work on Dissertation - Consult with Avryl - <u>Practical</u>: Complete Boyswear - <u>Business</u>:
11-15 October	- <u>Theory</u>: Work on Dissertation
18-22 October	- <u>Theory</u>: Get Dissertation edited and Bound
25-29 October	- <u>Theory</u>: Hand in Dissertation
1-5 November	
8-12 November	
15-19 November	- **<u>MODERATION</u>**
22-26 November	

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ABSTRACT

Children with autism experience fine motor difficulties that affect their ability to perform daily tasks. The purpose of this research study was to help improve these fine motor difficulties by teaching the child a specific skill which is to be able to dress oneself. The information gathered through the data gathering techniques described in this study, proved important in creating the practical component of this research study. It included a practical and functional children's wear range with a corresponding interactive Learn-To-Dress storybook.

The findings of this study suggest that there is a need for the acquisition of the important life skill, to be able to dress oneself. This was made possible with the use of the interactive Learn-To-Dress storybook with its' corresponding outfit.

ACKNOWLEDGEMENTS

GLOSSARY

Terms	Definition
AIDS	Acquired Immunodeficiency Syndrome
Autism	"an abnormal tendency to withdraw into a private world to such an extent that normal human communication is impossible" (Manser (ed.), 2001: 60).
Atypical Development	"reference to an 'abnormal' child's development" (Kearns, 2010).
Child Psychology	"is a branch of human psychology that deals with the study of the mental, emotional, and behavioural development of children" (Vasta et al., 1995: 4).
CMT	Cut, Make & Trim
Developmental Disorders	"is the serious impairment in several areas, including physical, behavioral, cognitive, social, and language development" (Case-Smith, 2005: 54).
Diagnosis	"the art or act of identifying a disease from it's signs and symptoms" (Case-Smith, 2005: 33).
Fine Motor Skills	"the use of the hands as tools for such things like eating, building, and exploring" (Vasta et al., 1995: 183).
Gross Motor Skills	"the movement of an individual's body, arms and legs" (Vasta et al., 1995: 183).
Impairment	"to damage or make worse by or as if by diminishing in some material respect" (Case-Smith, 2005: 658).
Intervention	"any measure whose purpose is to improve health or alter the course of disease" (Volkmar, 1998: 197).
Occupational Therapy	"a type of therapy designed to assist recovery from illness or injury by exercising the mind and muscles with handicrafts, painting, etc." (Manser (ed.), 2001: 690).

Psychology   "the study of mind and behavior in relation to a particular field of knowledge or activity" (Case-Smith, 2005: 35).

Social Engagement: "the interaction of the individual and the group" (Volkmar, 1998: 2).

Stages of Development   "a sequence of stages in child development that follow a pattern of equilibrium and disequilibrium interweaving in a steady progression to maturity" (Case-Smith, 2005: 63).

Typically Developing   "reference to a 'normal' child's development" (Kearns, 2010).

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CHAPTER ONE
Introduction

1.1 Introduction

The purpose of this dissertation is to add value to their lives by exploring the physical difficulties children with autism experience when dressing, and to produce and investigate the effects of an interactive Learn-to-Dress storybook in the improvement of these difficulties. This study intends to research how these motor development challenges can improve by the use of an interactive Learn-to-Dress storybook in conjunction with a practical and functional clothing range, in order to teach the child the specific skill to be able to dress them. Hereby the child's gross motor and fine motor skills will hopefully improve, and the child as well their parents can therefore enjoy a better quality of life, and allow the child to become more independent, and self-confident, simultaneously relieving pressure from the parents.

1.2 Background

The National Autistic Society (2010) defines autism as a lifelong developmental brain disorder. It is characterised by severe and complex impairments in social interaction, communication and behaviour (Case-Smith, 2005: 191). The Department of Health in the Western Cape has reported an estimated increase in autism over the last five years of 500%. Currently approximately ten children per week are being diagnosed at Red Cross Children's Hospital, Lentegeur and Tygerberg Hospitals. This excludes children that are being diagnosed through private practice (Autism Western Cape, 2010).

Children with autism experience many developmental difficulties, one being motor development disorders. In this study, I explored whether the utilisation of an interactive Learn-to-Dress storybook in conjunction with a matched outfit, improved the child's hand skill development. The Alpha School for children with autism is one of three schools for children with autism in the Western Cape and is situated in Woodstock, Cape Town. Parents of children with autism often express the need for their child to have the ability to dress by themselves, making the morning sessions a lot quicker and less stressful for them (Moosa, 2010). Studies have shown that the early years of childhood are the most formative years for children with autism (Autistic Society, 2004). Therefore it is vital for parents to take advantage of this stage in their child's life to give them the opportunity to show their true potential, so they feel confident in whatever they do.

1.3 Research question

Could a child's motor difficulties be improved by the utilisation of an interactive Learn-to-Dress storybook in conjunction with a matching outfit?

The aim of my research question is to find a practical solution to the motor challenges children with autism encounter. In order to answer this research question, three sub-questions will be examined and answered.

- What does the condition autism mean, and how does it affect children?

- What are the physical developmental difficulties children with autism experience, and how are these challenges currently being addressed within South Africa?

- How can a practical and functional children's-wear range be produced with an interactive Learn-To-Dress storybook, and how could it aid in the improvement of fine motor skills?

The Social Development Theory by Lev Vygotsky will provide the theoretical framework for my argument. The practical outcome of my research will be a practical and functional children's summer wear range for boys and girls between seven and ten years. The objective is to use natural fabrics, in pastel colours, and to incorporate trimmings such as elastic and Velcro to simplify the task to dress for the child. My desired outcome for this research study is to add value to their lives by helping children with autism to develop an important independent life skill.

This dissertation comprises of five main chapters, consisting of chapters two, three, four, five, and six. Chapter two will create the theoretical framework for this research study, focusing on Vygotsky's Social Development Theory. The third chapter will explore the physical developmental difficulties, which will be used to inform my practical outcome. Informal interviews with parents, teachers, and occupational therapists will be conducted to gather information.

Chapter four, the practical section, comprises of the product development. The designs, fabrics, and trimmings used will also be investigated. Chapter five investigates the market feasibility of the practical products in this study. And lastly, chapter six will state the outcome of this research study.

CHAPTER TWO

What does the condition autism mean, and how does it affect children?

The purpose of this chapter is to provide a conceptual framework that will be based on the Social Development Theory by Lev Vygotsky. It will be used to answer the question, *"What does the condition autism mean, and how does it affect children?"* My hypothesis is that there is a need for a practical and functional children's wear range in conjunction with an interactive Learn-To-Dress storybook. I will substantiate my argument by investigating the following topics:

- A brief history and definition of child psychology

- A brief history and definition of autism

- Social Development Theory

2.1 Child psychology

Child psychology refers to the study of child behaviour. This particular branch of psychology focuses not only on how children grow physically, but also on their mental, emotional and social development. It is also known as Developmental Psychology (Vasta *et al.*, 1995: 4).

One of the early theorists, who lay the foundation for further studies on child development in the nineteenth century, was Stanley Hall. His theory *"Ontogeny Recapitulates Phylogeny"* is based on the belief that children develop through various stages of evolution (Nadesan, 2005: 59). In the early twentieth century, child psychologist Arnold Gesell, influenced by Hall's approach of studying the 'stages' of child development, conducted large-scale studies examining children's behaviour in great detail. Gesell's observations of children enabled him to establish measures or guidelines for evaluating developmental progress in typically and atypically developing children. He believed that it was necessary to understand *"normal"* child development in order to understand *"abnormality"*. These measures continue to be revised and are used today.

Historical developmental theories such as that of Gesell, has provided current psychologists with a framework for further study in child development. Since the 1950's, American research psychologists became interested in Gesell's theoretical findings. Their own investigations supported his findings and confirmed the existence of qualitative differences in the behaviour of children at various ages; this was termed *"normal"* or *"abnormal"* (Vasta *et al.*, 1995: 22).

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2.2 Autism

Imagine an unfamiliar world in which little is recognisable and you feel constantly frightened, this is the world that children with autism live in. The word *"autism"* was initially used in 1919 by Swiss psychiatrist Eugen Bleuler. It was used to describe *"an extreme withdrawal of oneself from the outside world"* that was found in patients with schizophrenia. Although at the time the term autism was used to describe people with schizophrenia, and yet the autism disorder was very different, both have the similarity of impairments in social interaction with the world around them. In 1943, child psychiatrist Dr. Leo Kanner published a report while at Johns Hopkins hospital identifying unusual behaviours and developmental disorders in children with autism. It included *"children's inability to relate themselves to people"*, and *"repetitive behaviours and desire for sameness"* (McGregor *et al.*, 2008: 2). According to McGregor (2008), Kanner's research on autism remains significant and has stimulated the work of many professionals to date.

Current research defines autism as a lifelong developmental disability and forms part of the autism spectrum disorder. Although the exact causes of autism are not yet fully determined, research suggests that a combination of genetic and environmental factors impact on the development of the brain (National Autistic Society, 2010). Paediatricians are able to diagnose a child who is displaying symptoms of an ASD. In some cases, a child is referred to an occupational therapist to gain more information about why the child demonstrates performance difficulties (Case-Smith, 2005: 223). Health care providers use assessment tests to evaluate and diagnose children with learning disabilities. The child is given a number of activities to carry out whilst the occupational therapist observes. An evaluation is then processed, an intervention plan is developed, and therapy is initiated (Case-Smith, 2005: 226).

Recent developments in the field of autism, is the ability to recognize this disorder at a very early age. Signs of autism may appear during infancy and the disorder is usually diagnosed at the age of three. Research suggests that intensive intervention approaches, when started at an early age, significantly improve the difficulties children with autism face (Autism Western Cape, 2010).

Symptoms of autism occur in various combinations, from mild to severe. Autism causes delays in many basic areas of development such as learning to talk and interacting with others. The three main symptoms of autism include impairments in social interaction,

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communication, and the development of skills (Emmons & Anderson, 2005: 69). Children with autism find it difficult to relate to and understand other people's feelings and emotions, and therefore prefer being alone rather than with other people. Communication difficulties include verbal, and nonverbal communication in some cases. Many children with autism use visual symbols to communicate, known as Picture Exchange Communication Systems. The third most important symptom found in children with autism is the impairment in the development of skills (National Autistic Society, 2010).

The cause of autism is still being investigated, however, with early intervention such as occupational therapy, dietary and medical intervention, the symptoms of autism can be alleviated and minimized. The outcome of this research is to provide learning tools to aid these children, specifically to enable them to dress themselves. This research will therefore add value to people's lives.

2.3 Social Development Theory

Learning and Systems Theories are theories in which concepts about people, their environments, and their occupations are integrated (Case-Smith, 2005: 62). One such theory is the Social Development Theory, also known as the "Social Learning Theory" by Lev Vygotsky. He believed that an individual's mental development is influenced by his or her culture (Vasta et al., 1995: 23). In other words, abilities such as thought, language, and reasoning processes were believed to develop through social interactions with their environment. These interactions include those with parents and teachers, playmates and classmates, and brothers and sisters (Leong & Bodrova, 2001). Vygotsky referred to learning as *"the acquisition of knowledge through experience in a way that leads to a permanent change in behaviour"* (Case-Smith, 2005: 62). He suggested that children first experience activities (e.g. problem solving), where the child, the activity, and a significant other (e.g. teacher or parent) are all components. Initially the adult does most of the cognitive work, but gradually the adult's speech is internalised by the child, and with experience and application, becomes part of the child's cognitive repertoire (Missiuna et al., 1998).

Vygotsky believed that when a child and an adult experience an activity together, they interpret the objects and events differently. He suggested that the adult use language to help the child understand the situation so that child and adult have a shared definition (Case-Smith, 2005: 63). This theory will be used in support of the utilisation of the interactive Learn-to-Dress storybook to teach the child the specific skill to dress themselves. While the teacher

or parent reads the story out loud, the child is encouraged to simultaneously engage and follow each step. Hereby the child learns by experience. This will be covered more extensively in chapter four.

To conclude this chapter, learning is the result of *"interactions"* between the child and its environment. Each interaction results in new learning, which results in the development of skills and traits. Today we know that with highly structured and appropriate interventions, the behaviours of a child with autism may change in such a way that he or she may appear to no longer be autistic to the uninformed person. In the following chapter, I discuss the difficulties children with autism experience and role of storytelling as an educational tool.

CHAPTER THREE

What are the physical developmental difficulties children with autism experience, and how are these challenges currently being addressed within South Africa?

The purpose of this chapter is to answer the question, *"What are the physical developmental difficulties children with autism experience, and how are these challenges currently being addressed within South Africa?"* It will assist with the development of my practical component which will be explored in the following chapter.

3.1 Method

A qualitative approach was used to gather information, through the following primary data gathering techniques:

Primary techniques

- Interviews

- Observations

- Practical Tests

Interviews

I conducted informal interviews with a parent, a teacher, and an occupational therapist. The reason why all three of them were interviewed was to extensively understand the research topic from all angles. The feedback were collected and reviewed.

Observation

Careful observations were conducted at the Alpha School. The Alpha School is one of three schools in the Western Cape for children with autism. It currently has seventy-one students between six and eighteen years (Moosa, 2010).

Practical Tests

The practical product, clothing and storybook, was tested on four children with autism at the Alpha School.

3.2 Findings

Interviews

The results from the interviews conducted were that all three sources gave similar answers to the questions about fine motor difficulties children with autism face and intervention strategies currently being used.

Children with autism experience problems to process performance skills, such as the use and handling of clothing. This includes differentiating the front from the back of the garment. Other problems include putting on and taking off garments. Language is delayed, which restricts the child's learning ability. Often, the child becomes frustrated with the complexity of the task of dressing. Once the occupational therapist assesses the child's limitations and strengths in hand skills, they will use partial participation methods. Methods include visual charts or pictures, social stories, and clothing that is easy to manipulate and comfortable but slightly larger. Allowing the child to physically engage in the dressing activity helps the child learn the task. Parents express the need for their child to acquire the skill to dress them, which they feel will make the morning session a lot quicker for both parent and child (Moosa, 2010). Interesting comments were made about the current children's wear market. Children with autism often complain about certain details regarding the garment such as the fabric used, trimmings, labels and design of the garment. The garments are uncomfortable and impractical for children with autism.

Social stories are short stories that are used to describe everyday situations to children with autism, such as having to dress warm for winter, and so on. It enables children to better understand why and how particular tasks are done. Stories are kept basic and should be read and re-read to the child who is then able to familiarise themselves with the story. This will be examined in chapter four.

8

Observation

Having visited the Alpha School and spending time with the teacher and students, I observed the problems children experienced whilst dressing and undressing. I also conducted field research and observed what clothing is currently available for children with autism in various retail and boutique stores. This confirmed my findings from the interviews and helped me with the practical component of my research study.

Practical Test

Garments, along with their corresponding storybooks were given to a teacher at the Alpha School. Four children, consisting of two boys and two girls, between seven and eight years, were asked to take part in the study. First they were encouraged to explore and play with the activity section enclosed. Once the children had become familiar with identifying the key features used on the clothing, the teacher was asked to read the storybook out loud, step by step. The children were then encouraged to follow these steps, ultimately dressing themselves. This activity was performed twice a day, for three days. The teacher was then informally interviewed and was required to complete a feedback sheet. It was found, that the higher-functioning children with autism could identify the various animals that differentiate the back from the front of the garment. They were then able to dress themselves correctly, as well as close the velcro strips on the garment. Two children however, struggled to identify the animals and therefore needed guidance to dress themselves. The teacher recommended that the activity be performed for another few days to be able to teach the children how to identify the animals, enabling them to complete the task of dressing themselves. Once dressed, the children continued with daily tasks at school. The children were very comfortable and were able to move around freely in the garment, so much so that they did not want to take it off again. Teachers at school will teach this skill to the child. Since children with autism cannot generalise, parents will need to reinforce the process at home.

The information gathered through the data gathering techniques described in this chapter, has proved important in creating the practical component of this research study. It was found that there is a need for the acquisition of the important life skill to be able to dress oneself. It was also found that there is a market for a practical children's wear range made from natural fabrics. I also described the importance of social stories, and how a child is then able to

better understand how to perform certain tasks. In the next chapter, I will discuss the practical product and its development.

CHAPTER FOUR

How can a practical and functional children's wear range be produced with a Learn-To-Dress storybook, and how could it aid in the improvement of a child's fine motor skills?

The purpose of this chapter is to answer the research question, *"How can a practical and functional children's wear range be produced with an interactive Learn-To-Dress storybook, and how could it aid in the improvement of fine motor skills?"* and in doing so, the practical outcome will be developed.

4.1 The clothing range

Through the information gathered from interviews and observations, the need for a practical and functional children's wear range has become evident. A summer range was created for boys and girls, between the ages of seven to eight years. Silhouettes were kept A-line and loose fitting to add comfort and practicality. Natural fabrics, namely cotton and cotton knits, were used in the production of garments. Fabrics were washed before use to make the fabric even softer, thus improving the comfort of the garments. The principles of colour therapy were used to inform colour usage for outfits. Colours remained pastel and muted, giving a sense of tranquillity and calmness. Children with autism often complain about the label on a garment, finding it quite harsh against the skin. Therefore, my labels were sewn onto the garment making it comfortable to wear. Trimmings such as elastic and velcro replaced buttons and zips, easing the task of putting on and taking off clothes, as well as improving the child's fine motor skills. Fabric cutouts of various animals were used to identify the front and back of garments.

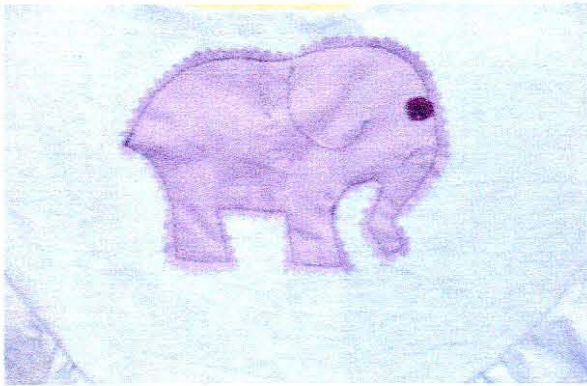**Figure 4.1:** Examples of trimmings used, velcro and elastic

Figure 4.2: Examples of animals cut out in fabric and stitched onto garments

4.2 The interactive Learn-To-Dress storybook

The storybook describes step by step how a child must dress him or herself. There are instructions for teachers and parents to read through before commencing with the story. It is a personalised book in which teachers or parents fill in the name of the child in the blank spaces. This is an important feature and allows the child to associate him or herself with the character in the story. Images of each step in the process is included thereby the child is enabled to make a visual connection between what is said and what is seen. The child is also able to make a sensory connection because images of garments were cutout and covered with the actual fabric. This again enhances the child's connection with what is seen and what is felt. There is an activity section included at the back of the storybook. These activities should be explored prior to the story being read, in order for the child to familiarise him or herself with the skills required to get dressed. It will also improve the child's fine motor skills. Activities include velcro strips, elasticised bands, and fabric cutouts of animals used on garments. Slightly thicker paper was used to make the storybook more durable.
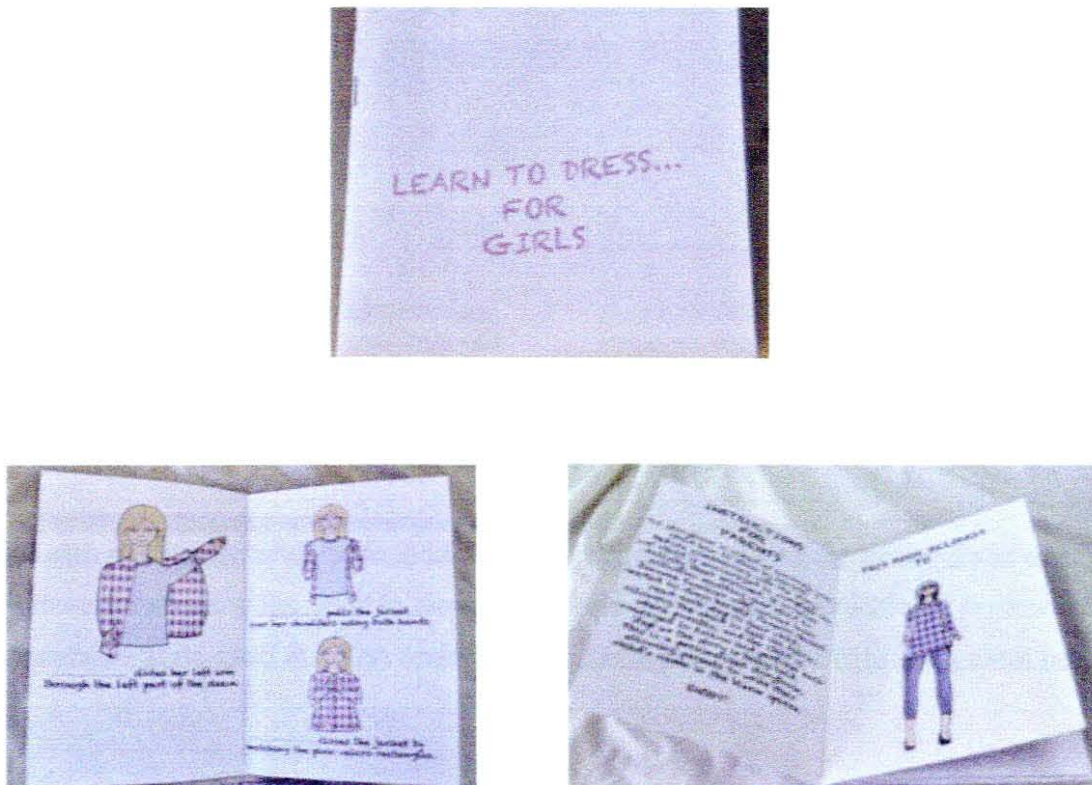

Figure 4.3: Examples of the interactive Learn-To-Dress storybook

4.3 List of outfits in range

There are twelve outfits in total consisting of:

- Three A-line dresses for girls
- Two tops and shorts for girls
- A girls weather coat
- Five t-shirts and shorts for boys
- A boys weather coat

4.4 Product description

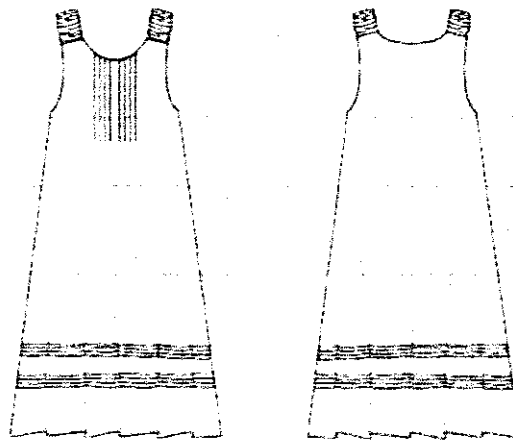### Girls Wear Outfits
Outfit One

Figure 4.4: Girls pastel purple dress

Dress with elasticated shoulders, enabling the child to get in and out of the dress easily. A-line silhouette allowing the child to move freely and comfortably. Vertical and horizontal pin-tuck detail. Fabric used is 100% cotton with a subtle print and the colour is pastel purple.
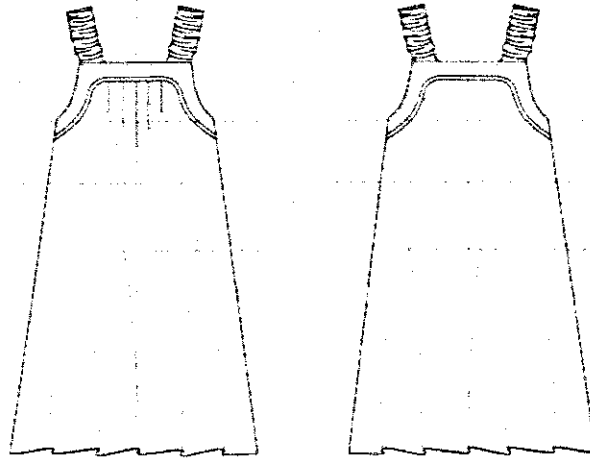
Outfit Two

Figure 4.5: Girls pastel pink dress

Dress with elasticated shoulders, enabling the child to get in and out of the dress easily. A-line silhouette allowing the child to move freely and comfortably. Vertical pin-tuck detail. Fabric used is 100%cotton with a subtle print and the colour is pastel pink.
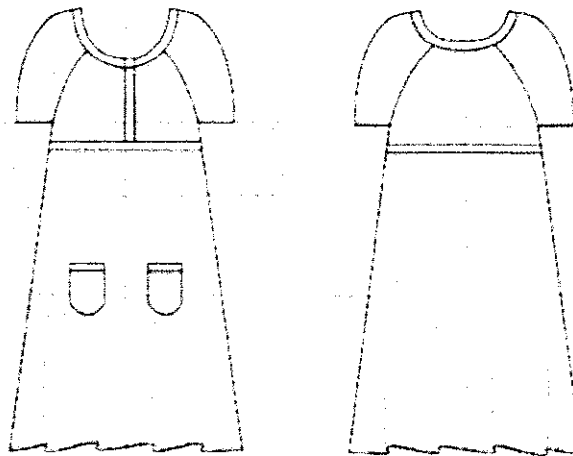
Outfit Three

Figure 4.6: Girls pastel blue dress

Dress with centre front opening. Designed with press stud closure making it easy for the child to get in and out of the dress. Raglan sleeves. Embroidered neckline, centre front opening and under chest band. Patch pockets with embroidered detail. Fabric used is 100% cotton with a muted print and the colour is light blue.
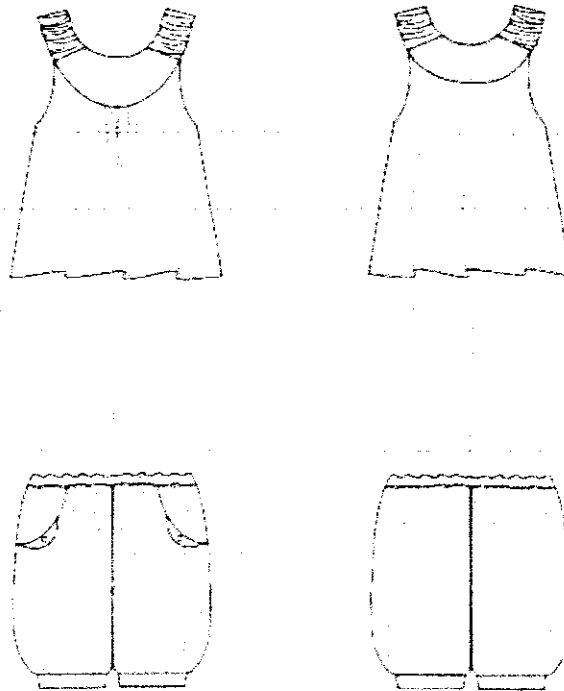
Figure 4.7: Girls pastel purple top and shorts

A-line top with elasticated shoulders, enabling the child to get in and out of top easily. Shaped yoke with gathered detail. Puffed shorts gathered into cuff. Elasticated waistline making it easy for the child to pull pair of shorts up and down. Mock fly front and side pockets with flap. Fabric used is 100% cotton and the colour is light purple.

Outfit Five

Figure 4.8: Girls pastel blue top and shorts

Bubble top with elasticated hemline and centre front opening, enabling easy access in and out of top. Yoke and gather detail. Bubble cut shorts with elasticated waistline and mock fly front. Inverted pleat detail. Fabric used is 100% cotton with a print and the colour is baby blue. A purple elephant and green giraffe is stitched onto the back of the top and giraffe, respectively. This feature enables the child to identify the back of the garment, which is the first step of getting dressed.
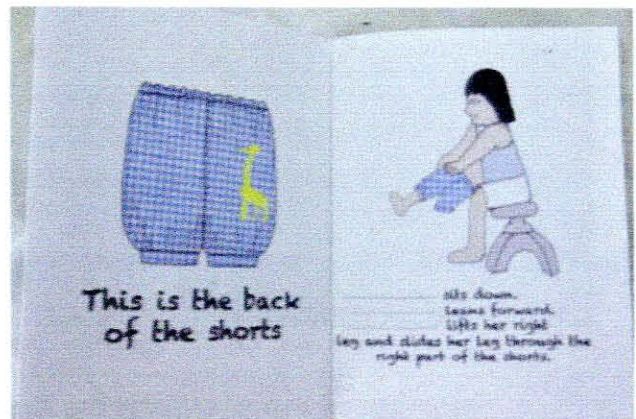

Figure 4.9: Learn-To-Dress storybook and activities for girls outfit five

Figure 4.10: Girls purple weather coat

Lightweight weather coat with panelled hood and peter pan collar. Concealed fronting with velcro closure making it easy to close and open. Yoke with gathered detail. Two-piece sleeve and patch pockets. Fabric used is 100% cotton with a print and the colour is purple. The pink rabbit is stitched onto the front of the jacket. Finding the pink rabbit is step one in the process of getting dressed.

Figure 4.11: Learn-To-Dress storybook and activities for girls weather coat

Figure 4.12: Boys t-shirt and shorts

Three quarter raglan sleeves. Fabric used is cotton knit, and the colour is pastel green. Shorts are three quarter in length, with elasticated waistline. Silhouette is loose and boxy. Fabric used is cotton twill and colour is navy blue. A purple elephant and green giraffe is stitched onto the back of the garments. It enables the child to identify the back from the front of the garment.
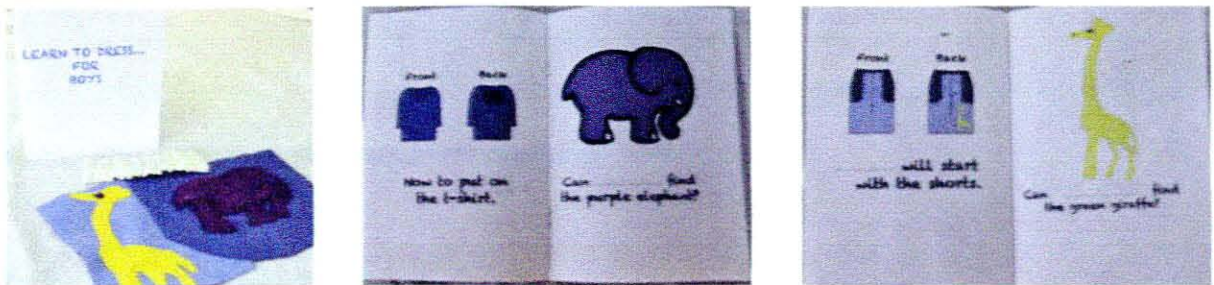

Figure 4.13: Learn-To-Dress storybook and activities for boys outfit seven

Outfit Eight
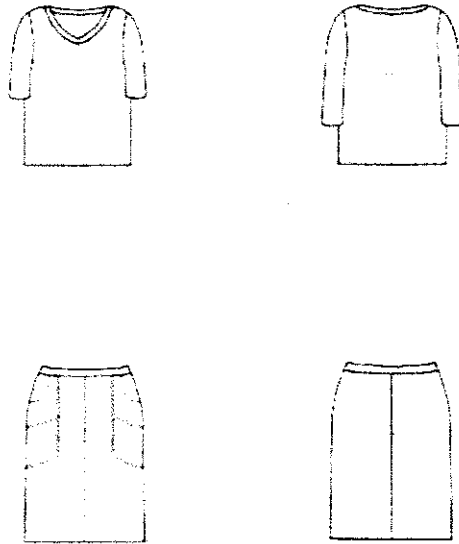
Figure 4.14: Boys t-shirt and shorts

Short sleeved t-shirt in cotton knit. Colour used is pastel blue. Shorts are three quarter in length, with elasticated waistline. Contrast colour stitching. Silhouette is loose and boxy. Fabric used is cotton twill and colour is beige.
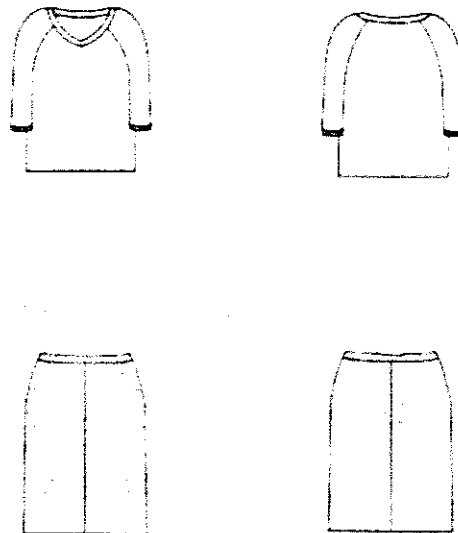
Outfit Nine

Figure 4.15: Boys t-shirt and shorts

Three quarter raglan sleeves. Fabric used is cotton knit, and the colour is pastel blue. Three quarter length shorts with elasticated waistline. Contrast colour stitching. Silhouette is loose and boxy. Fabric used is cotton twill in navy blue.

Outfit Ten
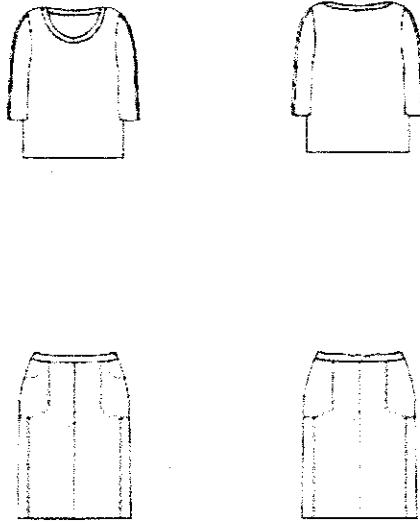
Figure 4.16: Boys t-shirt and shorts

T-shirt has three quarter sleeves with contrast fabric for panels. Cotton knit is used, in beige. Shorts have an elasticated waistline, contrast fabric for panels with contrast colour stitching. Cotton twill is used in pastel blue.

Outfit Eleven
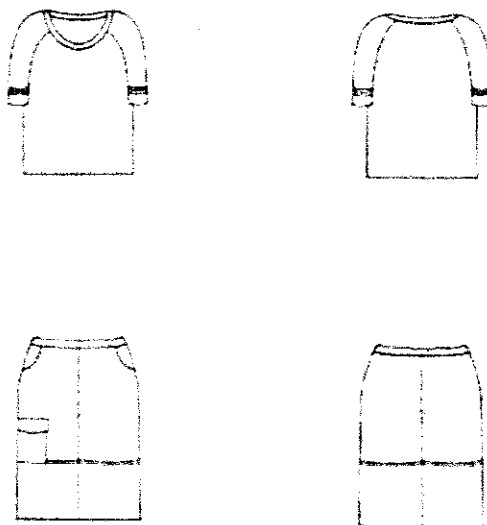
Figure 4.17: Boys t-shirt and shorts

Short sleeved t-shirt with raglan sleeves. Fabric used is cotton knit in navy blue with contrast colour fabric along hemline. Shorts are elasticated at the waist. Patch pocket with contrast colour seam. Fabric used is cotton twill in a pastel blue.

21
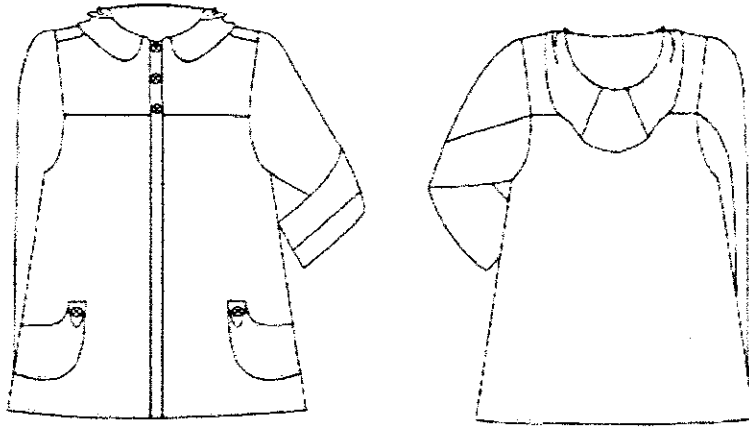
Figure 4.18: Boys weather coat

Lightweight weather coat with panelled hood and peter pan collar. Concealed fronting with velcro closure making it easy to close and open. Two-piece sleeve. Fabric used is 100% cotton in pastel green.

In conclusion, it has been shown that a practical and functional children's wear range can be produced, whilst meeting the current needs of parents. In addition to the clothing range, an interactive Learn-To-Dress storybook was also produced, equipping children with the skill to dress by themselves, ultimately improving their fine motor skills.

CHAPTER FIVE
Market Feasibility

A business plan will be required to ascertain the market feasibility of the product range. It specifies what the business is selling, to whom and how the product will be sold. Along with these three important questions, one needs to research the target market, the sales strategy the business will use, decide how the business will operate and by whom, and lastly the financial data the company will require.

5.1 Description of the business

The industry
Aut-I-Wear situates itself in the clothing and textile industry in South Africa.

Products to be sold
It is a new specialised children's-wear company that offers practical and functional clothing catering to the needs of children with autism. The clothing range includes dresses, tops, shorts and lightweight weather coats for boys and girls between the ages 7 to 10 years. An interactive Learn-To-Dress storybook will accompany each outfit.

Market need for products
Aut-I-Wear offers unique clothing, which is specifically designed by taking into account the motor difficulties children with autism experience. *Aut-I-Wear* pays close attention to every detail in the designing of each garment, from the label to the fabric and to the colours being used. This is why customers will rather opt for *Aut-I-Wear* rather than a mass produced garment designed for the mass market. Another factor that will influence customers to purchase *Aut-I-Wear* is that the outfit is designed in conjunction with an interactive Learn-To-Dress storybook to help teach the child how to dress themselves.

5.2 Market analysis

Industry description
In light of the recent loss of thousands of jobs within the South African Clothing and Textile Industry over the last few years due to low-priced imports from Asia, statistics show a gradual increase in growth in the industry.

Since 1994, about $900-million has been spent on modernising and upgrading the industry, making it efficient, internationally competitive, and ready to become a major force in the world market. Exports account for R1.4-billion for clothing and R2.5-billion for textiles, mostly to the United States of America and Europe. South African manufacturer Sans Fibres produces 80% of the world's apparel sewing thread. Local company Gelvenor Textiles makes 50% of the world's parachute fabric, and top-class manufacturer House of Monatic recently delivered its one-millionth suit to the United Kingdom market (South Africa Info, 2010).

Owing to technological developments, local textile production has evolved into a capital-intensive industry, producing synthetic fibres in ever-increasing proportions. The apparel industry has also undergone significant technological change and has benefited from the country's sophisticated transport and communications infrastructure. The South African market demand increasingly reflects the sophistication of first world markets and the local clothing and textile industry has grown accordingly to offer the full range of services - from natural and synthetic fibre production to non-woven, spinning, weaving, tufting, knitting, dyeing and finishing (South Africa Info, 2010).

About 44 000 people were employed in 2008 by this sector, which has been earmarked by the government as a key job-creating sector. In an attempt to support the industry and offset the effect of the deepening global recession, the government was, in early 2009, considering an ambitious rescue package for the clothing and textile sector, which could include incentives under the manufacturing investment programme (Media Club South Africa, 2010).

According to the survey, general dealers, other retailers and retailers in textiles, clothing, footwear and leather goods were the major contributors to the increase in retail trade sales. Among the major retailing groups are Edcon, Massmart, Mr Price Group, and the Foschini Group (see apendix) (Media Club South Africa, 2010).

Customers with need for products
Customers include parents and all the people who know a child with autism.

Target market
Aut-l-Wear's target market is for children between the ages of 7 to 10 years. This is because only at the age of 7 do children with autism distinguish the front from the back of a garment. Customers include all parents whose child has been diagnosed with autism and the parents who are concerned about the well being of their children. Target market areas include the

provinces of the Western Cape, the Eastern Cape, Northern Cape, Kwa-zulu Natal, Free State, Gauteng, and the North West.

Competition

Competitors include children's wear companies Naartjie and Earth-Child. The clothing customers purchase is determined by what is currently available on the market. Customers find the fabric use of these two companies to be suitable for their child.

Competitive strategy

The advantage *Aut-I-Wear* will have over its' competitors is that it is a specialised children's wear company with reference to children with autism. It guides and teaches the child how to dress him or herself, giving the child confidence and independence. The needs of children with autism are taken into account when designing the clothing items. The use of printed labels, natural fabrics and pastel colours are all design details catering for the needs of the child. It includes girls and boys-wear and is the first of its kind to be designed with elasticised shoulders making it easy for the child to put on and take off the garment. Another advantage *Aut-I-Wear* will have is that it will be easily accessible to its customers from all across the country, via the Internet. Thereby no rent cost is payable and this will in turn allow *Aut-I-Wear* to keep the cost of each garment down to a minimum.

5.3 Marketing and sales strategy

Distribution Channels

Products will be available to purchase through *Aut-I-Wear's* website. The distribution channel will be a one-way distribution channel, in that the product will go from manufacturer to retailer to consumer.

Pricing

Examining how much it cost the owner to produce the product and adding a profit mark-up percentage determine the price. Prices will be kept to a minimum by sourcing reasonably priced, natural quality fabrics and trimmings and sourcing a reasonably priced CMT company. By keeping costs relatively low, *Aut-I-Wear* will be accepted and secure its place in the marketplace.

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Promotion and Advertising

The company will be advertised on various Autism Organisation websites, by being added as a link on their website. I plan to build my customer base by joining international online Autism Organizations within the following year. It will also advertise at various schools for children with autism, in local newspapers, and direct mail brochures and pamphlets. The company will generate publicity through product launches, which will be held at various schools. Publicity will also be generated through special events such as autism awareness campaigns.

Sales Strategy

Sales strategy include direct sales via the website by the owner. Another sales strategy the company will implement is to offer customers a certain percentage off their purchase if they spend more than a certain amount of money with the company or if they purchase three or more items.

5.4 Operations

Office requirements

I will run the business from home, enabling me to save on various costs such as rent. Due to the business being run online, a small sized office will be required. I am situated in Cape Town, Western Cape.

Suppliers

All suppliers of fabrics, trimmings, and packaging are located in Cape Town, Western Cape. Delivery time is almost immediate since materials are readily available.

5.5 Management team

Background and experience of key owner

Aut-I-Wear is a sole proprietorship. I will be responsible for the day to day running of the business. This includes the sourcing of fabrics and trimmings, designing outfits, as well as taking orders from customers and the delivery of products. I will also be responsible for the bookkeeping. I am good at problem solving as well as working within a budget. This will be my first business venture and a huge challenge as well.

5.6 Financial requirements

Use of funds

Funds obtained will be used to purchase raw materials and pay for labour, and expenses such as advertising, registration fees, utilities, and office supplies.

Amount

Funds needed amount to R50 000 and will be obtained from a bank in the form of a loan.

Terms

Interest rate charged for the bank loan is 15%. A monthly repayment of R1733 will be paid to the bank over 36months. Due to the small amount of capital needed from the bank, the owner applied for a personal loan, and therefore collateral was not required from the bank.

5.7 Financial data

Cash flow projections- Refer to appendix B.

Proforma income statements- Refer to appendix C.

In conclusion, the practical outcome of this research study is a viable one. It was found that there is a market for this practical children's wear range. The following chapter discusses the outcomes of this research study.

CHAPTER SIX
Conclusion

The purpose of this research has been to design and produce a practical and functional children's wear range, catering for the needs of children with autism. It was produced in conjunction with a matching outfit and corresponding Learn-To-Dress storybook, which was used to teach children how to clothe themselves. Three questions were formulated to determine how this was possible.

The first question asked in chapter two: *"What does the condition autism mean, and how does it affect children?"* By answering this question I was able to gain a better understanding of the disorder as well as the effects it has on a child. The Social Development Theory by Lev Vygotsky provided the theoretical foundation on which this research study was based. By applying this knowledge, the practical part of this research was based on developing and proving that a clothing range, together with a Learn-to-Dress storybook, aids in teaching the child how to dress by oneself.

The second question in chapter three, *"What are the physical developmental difficulties children with autism experience, and how are these challenges currently being addressed within South Africa?"* concentrated on the symptoms caused by fine motor difficulties, and how it affected a child's physical development. Information was gathered by data collection techniques such as observations and informal interviews with parents, occupational therapists and teachers. This information was used to develop the practical component of this research.

The third question asked in chapter four: *"How can a practical and functional children's-wear range be produced with an interactive Learn-To-Dress storybook, and how could it aid in the improvement of fine motor skills?"* This chapter included a detailed description of each garment and storybook within the range. Chapter five examined the market feasibility of the product, and showed the potential viability of it.

The conclusion of this research study has been positive, proving through tests, that the product design for a specific need and niche market is beneficial, thus making this research endeavour successful.

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Appendix A: Explanatory Statement

<u>EXPLANATORY STATEMENT:</u>

Dear Parent

The objective of my research is to design and produce a range of practical and functional children's wear, in conjunction with a storybook which I hope will aid and assist in the improvement of their fine motor skill development, enabling children to dress themselves.
I intend to undertake my research at the Alpha School, based in Woodstock, Cape Town.

Thank You
Nabeela Moosa

_____

_____

Parent

_____

Principal

FEEDBACK SHEET:

1. How practical are the steps?

2. Is there a difference in the child's ability to dress, after utilising the Learn-To-Dress storybook?

3. What was the child's reaction to the clothing range and storybook?

4. As teachers, do you see the Learn-To-Dress as a useful learning tool?

5. Do you see this storybook as being more useful in the child's mother tongue?

6. Is there a difference in the child's fine motor skill ability?

7. What suggestions would you recommend?

Thank You