



**FACTORS THAT INFLUENCE SCHOOL ENROLMENT OF CHILDREN WITH
DISABILITIES IN SOUTH AFRICA**

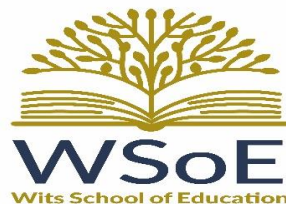
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**A Research report submitted In Partial Fulfilment of the requirements for the award of the
degree of Master's in Education by Coursework and Research Report**

January 2023



DECLARATION

I declare that this research report is my independent and original research work in Inclusive Education at the University of the Witwatersrand, Johannesburg. It has not been presented and will not be presented to any other University for a similar or any other degree award.

Name: Appolonia N. Odimegwu

Sign: .



Date: 20th January 2023

DEDICATION

This research is dedicated to God Almighty.

ACKNOWLEDGEMENT

My thanks go to God Almighty for giving me guidance, strength, good health, and wisdom during the time of this study.

My thanks go to the University of Witwatersrand for granting me the chance to finish this master's degree.

Lastly, my heartfelt appreciation goes to my husband and children for their love, support, encouragement, and prayers during this study period.

ABSTRACT

Background: Since the advent of democracy in South Africa, several programs and policies have been formulated to deal with the needs of disabled children to enable them to enter mainstream society. Nonetheless, despite these policies, disabled children are among the most underprivileged in terms of school access. There are many disabled children who have not been enrolled in the school system.

This study explored issues of access to quality education for disabled children in South Africa. The study investigated the factors that influence the school enrolment of children with disabilities in South Africa with the intention of identifying the individual, socioeconomic, household, and community determinants of school enrolment.

Data Source and Method: Secondary data from the General Household Survey 2020, extracted from Statistics nesstar was used. The research design is quantitative. The weighted sample size for this study is 198,162 children with disabilities. The dependent variable is the school enrollment of children with disabilities. Bronfenbrenner ecological system theory was the theoretical framework for this study. A three-phase analysis comprising univariate, bivariate, and multivariate analyses was done. Multivariate logistic regression was used to conduct the analysis.

Results: It was found that household size, place of residence, province, household income, household own vehicle, and the mother's employment status are factors that influence school enrollment of disabled children. Children with disabilities from households that own vehicles are more likely to be enrolled in school. The larger the family size (6+), the more likely a disabled child would be enrolled in school. Also, the employment status of the mother influences the school enrolment of children with disabilities. Surprisingly, disabled children residing in rural areas had more chances of enrolling in school than those living in urban areas.

Conclusion: The findings underscore the fact that a social ecological model should be used to conduct an in-depth investigation into the enrollment of disabled children in schools. Policy implications are discussed.

ABBREVIATIONS

CRPD: Convention on the Rights of Persons with Disability.

DBE: Department of Basic Education.

DFID: Department for International Development.

DSD: Department of Social Development.

DWCPD: Department of Women, Children and People with Disabilities.

EFA: Education for All.

ELSEN: Educational Tutoring Services in Literacy, Special Needs, Extra Lessons, and Numeracy.

ECD: Early childhood development.

GHS: General Household Survey.

OECD: Organization for Economic Cooperation and Development.

NGEC: National Gender Equality Commission.

SAHRC: South African Human Rights Commission.

STATSSA: Statistics South Africa.

SIAS: Screening, Identification, Assessment, and Support.

UNESCO: United Nations Educational Scientific and Cultural Organization

UNICEF: United Nations International Children Education Fund.

TABLE OF CONTENTS

DECLARATION	i
DEDICATION	ii
ACKNOWLEDGEMENT	iii
ABSTRACT	iv
ABBREVIATIONS	v
TABLE OF CONTENTS	vi
LIST OF TABLES	ix
LIST OF FIGURES	ix
CHAPTER ONE: INTRODUCTION	1
1.1 Introduction	1
1.2 Background to the study	2
1.3 Problem Statement	3
1.4 Purpose of the Study	4
1.5 Research questions	4
1.6 Rationale	5
1.7 Theoretical framework	6
1.8 Definition of key words	8
1.8.1. Disability	8
1.8.2. Children with disabilities	8
1.8.3. School Enrolment	8
1.9 Conclusion	8
CHAPTER TWO: LITERATURE REVIEW	10
2.1 Introduction	10
2.2 Disability issue	10
2.3 Importance of education for children with disabilities	11
2.4 Inclusive education and disability in South Africa	12
2.5 Factors that influence school enrolment of children with disabilities	14
2.5.1. Household factors	15
2.5.1.1 The role of parental income level on school enrolment	16
2.5.1.2 Parental Level of Education and School Enrollment	17
2.5.1.3 Head of household's influence on school enrolment	17
2.5.1.4 School fee requirement's impact on school enrolment	18
2.5.1.5 Employment status and school enrolment	18
2.5.2. Community factors	19
2.5.2.1 Shortage of special needs schools	19
2.5.2.2 Distance to school	20
2.5.2.3 Province and disability	21
2.5.2.4 Place of residence	22
2.5.2.5 Transportation	22
2.5.2.6 Inadequate resources in some special needs school	23
2.5.2.7 Covid-19 and exclusion of learners with disabilities	24
2.5.2.8 Discrimination/stigma's impact on school enrolment	24
2.6 Conclusion	26

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY	27
3.1 Introduction	27
3.2 Research paradigm	27
3.2.1. Positivist paradigm.....	27
3.2.2. Axiology	28
3.2.3. Ontology	29
3.2.4. Epistemology	29
3.2.5. Research methodology.....	30
3.3 Research design.....	31
3.4 Data source	31
3.5 Sample size and sampling methods.....	32
3.6 Data collection.....	32
3.7 Variables.....	32
3.8 Data analysis	33
3.8.1. Univariate analysis.....	33
3.8.2. Bivariate analysis	33
3.8.3. Multivariate analysis.....	33
3.9 Ethics consideration	34
3.10 Research methodological rigour.....	34
3.11 Conclusion.....	35
CHAPTER FOUR: PRESENTATION OF FINDINGS	36
4.1 Introduction	36
4.2 Findings on level of school enrolment of disabled children	36
4.3 Findings on individual factors associated with the school enrolment of disabled children	39
4.4 Findings on household and community factors that affect school enrolment of children with disabilities	41
4.5 Findings on Factors that influence school enrolment of children with disabilities.....	43
4.6 Conclusion.....	45
CHAPTER FIVE: DISCUSSION OF FINDINGS AND CONCLUSION.....	46
5.1 Introduction	46
5.2 Discussion of findings.....	46
5.2.1. Level of school enrolment of children with disabilities in South African school system	46
5.2.2. Individual factors associated with disabled children's school enrolment.....	47
5.2.3. Household factors that affect school enrolment of disabled children	48
5.2.4. Community factors influencing enrolment of children with disabilities in school.	50
5.3 Significance of the study	51
5.4 Limitations of the study.....	52
5.5 Recommendations	53
5.6 Conclusion.....	53
REFERENCES	54
APPENDIX 1: ETHICS CLEARANCE.....	60
APPENDIX 2: DO-FILE OF STATISTICAL ANALYSIS.....	61

LIST OF TABLES

Table 1: Background characteristics of the weighted sample of children with disabilities in South Africa – GHS 2020	37
Table 2: Percentage distribution of school enrolment of children with disabilities by background characteristics. (GHS 2020)	39
Table 3: Results of bivariate logistic regression of enrolment of children with disabilities and selected variables (GHS 2020).....	41
Table 4: Results of multivariate logistic regression of enrolment of children with disabilities and selected variables (GHS 2020).....	43

LIST OF FIGURES

Figure 1: Levels of school enrolment among disabled children in south Africa	37
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CHAPTER ONE: INTRODUCTION

1.1 Introduction

This chapter presented the introduction to the study. The chapter is divided into eight sections, which are: background to the study, problem statement, purpose of the study, research questions, rationale, and theoretical framework. The study of disability, especially at the level of children, has received global attention (Moyi, 2017; Mont, 2007; (United Nations International Children Education Fund {UNICEF}, 2015). The prevalence of disabled children has been reported to be high in low-income countries (Durkin et al., 2008, as cited in Moyi, 2017). This increase has been ascribed to several factors including “nutritional deficiencies, increased exposure to disease, environmental toxins and injury because of harsh living conditions found in low-income countries” (Durkin, Gottlieb, Maenner, Cappa & Loaiza, 2008; Yeo & Moore, 2003, as cited in Moyi, 2017, p.1).

The consequences of disability among children have varied. Disabled children do not have equal access to social services, particularly education (Hoogeveen, 2005; United Nations Educational Scientific and Cultural Organization {UNESCO}, 2010). UNICEF (2021) indicated that an estimated 240 million children are living with disabilities globally. 49% of the disabled children were left out of school or have never been to school while 80% of disabled people globally are living in developing countries. Children with disabilities have fewer educational opportunities and are less likely to be enrolled in school and finish primary school as one-third of those who were out of school at the primary level were disabled children (UNESCO, 2010 & 2016; Moyi, 2017).

While we are aware that disabled children face notable barriers to education, particularly in low-income countries, research on disability and formal access to education has been limited (Filmer, 2008). Even though current statistics show that 80% of the disabled people globally live in developing countries, 49% of global population is school-age children with disabilities who are more likely to have never been to school (UNICEF, 2021), and little is known about the factors that influence their school enrollment. In South Africa, existing studies reported that the number of children with disabilities is 4.9% (Statistics South Africa {Statssa}, 2020). Most of these studies are qualitative, whose objectives provided a broad overview of the context and prevalence of disabled children as well as their educational access. Identification of factors of educational access

among disabled children is a critical issue in South Africa which has been under researched. The purpose of this study was to explore the individual, household, socioeconomic and community factors that influence school enrolment of disabled children in the South African school system.

1.2 Background to the study

Disability is experienced by many globally, mostly in developing countries, with a high prevalence in low- and middle-income countries (UNESCO, 2010) of which South Africa is not an exception. South Africa being a signatory of UN Convention on the Rights of the Child (United Nations {UN}, 1990) and UN Convention on the Rights of Persons with Disabilities (UN, 2006) facilitated the implementation of programs towards the fulfilment of the rights of children especially the disabled children. However, there remained a substantial knowledge gap regarding the challenges disabled children and their families face, such as access to education (Department of Social Development {DSD}, Department of Women, Children, and People with Disabilities {DWCPD} & UNICEF, 2012).

Although there is an improvement in access to education for all children including the disabled ones in South Africa, in 2014, it was reported that approximately 70% of school-age children were not attending school (Donohue & Bornman, 2014). The General Household Survey {GHS} 2018 report indicated that “Blacks aged 5-6 years old with disabilities are less likely to attend educational institutions than their peers without disabilities” (Stassa, 2018, p. 15), around 100,000 children aged 7- 15 years old, and 374,000 children aged 16-18years old which might include disabled children did not have access to education (Stassa, 2018). The report showed that around 72% of 16-18 years with disabilities who were attending school in 2018 was significantly lower than the percentage of all 16-18 years old who were attending school. The studies show that having the right to education does not guarantee immediate access to education for people with disabilities. There are various factors that have a “direct or indirect impact on the disabled children’s ability to claim their right to education” (Muthukrishina, Morojele, Nadioo & D’ Amant, 2016, p. 2). In South Africa like other developing countries, “many children with moderate to severe disabilities fall through the cracks of the educational system” (Statssa, 2014, p.9). Therefore, it is crucial to explore the critical factors that affect school enrolment of children with disabilities in South Africa.

1.3 Problem Statement

The past three decades have witnessed huge interest in the education of children in developing countries. The focus of these studies is to understand factors that can promote or inhibit children's access to education in developing countries. As a result, an increasing body of research focusing on disabled children in developing countries emerged. Most of the studies were primarily concerned with explaining special education programs and their historical development in developing countries such as South Africa (Skuy & Partington, 1990), Zimbabwe (Barnartt & Kabzems, 1992), and Tanzania (Tungaraza, 1994), among others.

Since the demise of the apartheid system of government in South Africa, the educational scene has undergone significant change. To fulfil the Education for All (EFA) (UNESCO, 1990) commitment, the South African government has adopted several strategies to promote equal access to inclusive education. These strategies include among others, a mobilization campaign, the giving of grants to all children aged 5-18 years old, and the implementation of the policy on Screening, Identification, Assessment, and support (SIAS) (Department of Basic Education {DBE}, 2015) to reach out to children who were not in school including those with disabilities and ensure their school enrolment.

Despite these efforts, the school participation rates of disabled children in South Africa are still not impressive and continue to suffer. According to Human Rights Watch (HRW), nearly 11,500 disabled children were on the waiting list to enroll in special schools in 2017 (HRW, 2019). Many of those learners with disabilities who were in schools continued to experience segregation as they were referred for special school placement after a short stay in mainstream school (HRW, 2019; Donohue & Bornman, 2014). In other words, many children remain excluded from meaningful learning while they are in school because their needs cannot be met effectively. This process may limit children's access to school if special schools do not have enough admissions space.

Furthermore, in 2018 a significant number of children aged 7-18 years were out of school. In 2019, 524,907 children were out of school and many of them might be children with disabilities. Of this number, 144,627 are children aged 7-15 years old, and 380,280 are children aged 16-18 years old (Statssa, 2019). Though, COVID may be blamed for this number, there may be other factors responsible for non-school attendance especially among the disabled children. According to survey data, children with disabilities are significantly less likely to attend school than their non-

disabled peers as stated in the 2018 and 2019 General Household Surveys. Disability being one of the major reasons for not attending school appears to be the biggest barrier to access education (Statssa, 2018 & 2019). This is an indication that there are specific determinants which need to be investigated.

In the context of South Africa's transformative change in the educational landscape, it is essential to examine the extent to which access to education has reached children with disabilities and what factors predispose them to enrolling in schools. A proper understanding of the factors that influence disabled children's school enrolment becomes necessary. In light of this, this study explored the gamut of quantitative factors that affect the school enrolment of children with disabilities.

1.4 Purpose of the Study

The purpose of the study was to explore the individual, household, and community factors that influence the enrolment of children with disabilities in the South African school system. Goal 4 of the Sustainable Development Goals (SDGs) calls for universal and quality education for all (UNESCO, 2015). People with disabilities are among the groups most likely to be excluded from school. As a result, the United Nations and other organizations' focus is on people with disabilities in tracking progress toward the 2030 agenda for sustainable development in areas such as the development of methodological standards, the compilation and dissemination of disability statistics, and the strengthening of national statistical capacity. So, it is crucial to explore and address the factors that influence the school enrolment of children with disabilities to fulfil the call for inclusive and quality education for all (UNESCO, 2015).

1.5 Research questions

The main research question is:

What are the factors that influence the school enrolment of children with disabilities as identified from General Household Survey data?

Sub-research questions are:

1. What is the level of school enrolment of children with disabilities in South African school system?
2. What are the individual factors associated with disabled children's school enrolment?
3. What are the household factors that affect school enrolment of disabled children?
4. What are the community factors influencing enrolment of children with disabilities in school?

1.6 Rationale

The overall goal of South Africa's education sector is to achieve universal education by 2030. Even though access to basic education has increased significantly in recent decades, some children still do not have the opportunity to enroll in school, and they either drop out or fail to acquire the necessary basic skills. The exclusion of disabled children from school has a negative economic impact at the family, community, and national levels. The educational gap experienced by disabled children can become the most difficult barrier to earning an income and long-term financial health as adults.

Goal 4 of the SDGs commits member countries to working towards inclusive and quality education to promote ongoing learning opportunities for all (UNESCO, 2015), including disabled people. Despite this intention, the 2030 aim of universal primary and secondary school completion is not on track, and 50 percent of disabled children in low and middle-income countries were not in school prior to the pandemic. Its presence has only exacerbated an already dire situation. So, there is a need to identify the individual, household, and community factors that influence the school enrolment of children with disabilities.

This study can contribute to the achievement of the SDG 4 as a good understanding of the factors may help in putting the right strategies in place thereby improving the accessibility and participation rates of disabled children and youths in school. This study can help in raising awareness in schools and communities on factors that affect school enrolment of children with disabilities. Furthermore, exploring the determinants of school enrolment among children with disabilities can assist the Department of Education by providing useful information on school enrolment that can be used to improve existing educational policies.

1.7 Theoretical framework

This study adopts Bronfenbrenner's Ecological Systems Theory for understanding the factors that influence the school enrolment of disabled children from individual, household, and community perspectives. All the policies in South Africa that are related to inclusive education come from the position of the social model of disability paradigm which does not only examine the intrinsic factors but also extrinsic factors that would impact on a child's development, participation, and progress in life (Barnes, 2003; Oliver & Barnes, 2010; Barnes, Mercer & Shakespeare, 2010, as cited in Retief & Letsosa, 2018). The microsystem, exosystem, and macrosystem were used as lenses to identify and explore the factors influencing the school enrolment of disabled children. In this study, the internal and external factors that influence the school enrolment of children with disabilities were explored, drawing from the 2020 GHS data. The individual, household, and community factors can be seen in the microsystem, exosystem, and macrosystem of Bronfenbrenner's Ecological Systems Theory.

Bronfenbrenner's theory conceptualization is to understand the development of a child from the perspective of the structures of relationships that make up a child's environment (Bronfenbrenner, 1979). To understand a child's development, it is essential to consider not only the immediate surroundings but also the interactions of the extended surroundings (Bronfenbrenner, 1979). This means understanding the child's place and interactions within systems such as family, school, and the broader society, and how these interactions can impact and influence a child's development and growth. According to this theory, "a child exists within layers of social relationships such as the family, peer group (microsystem), school, neighborhoods (exosystem), and culture and society (macrosystem), and each layer has an influence on other layers in an interdependent way" (Visser in Duncan et al, 2007, p. 106, as cited in Pillay & Terlizzi, 2009). The theory's emphasis is that a child's family is the first environment that influences the child's development; that the synergy between the factors of a child's close family, community, and society helps his/her development; and any dispute or changes in any of the system levels affects what happens in others (Bronfenbrenner, 1979).

The focus of this study is not primarily on child development but on the factors that constrain the school enrolment of disabled children. So, this study used Bronfenbrenner's Ecological Systems Theory to examine various levels of the systems and various interactions or relationships within

each system to try and identify the systemic factors that might influence the school enrolment of disabled children. There are five systems identified by Bronfenbrenner, which are the microsystem, mesosystem, exosystem, macrosystem, and chronosystem and this study focused on the microsystem, exosystem and the macrosystem.

The microsystem is the “innermost structure where the earliest effect on the child is the interaction between the family, peers, childcare and school” (Berns, 2012, p. 18, as cited in Engelbrecht, Nel, Nel, & Tlale, 2015). The microsystem is the most immediate and influential environment with which a child comes into direct contact, and it includes the child's relationships and interactions with his or her parents and siblings (Bronfenbrenner, 1979; Guy-Evans, 2020; Berk, 2000). For this study, questions related to age, gender, relationship to household head, identification of disability (whether a child has disability), and as well as questions related to the family structures were identified from the GHS (2020) to explore the factors at the microsystem level that influence school enrolment of children with disabilities.

The mesosystem is the second layer of the Bronfenbrenner Ecological Systems theory. It provides the interaction between a child's microsystem (Guy-Evans, 2020; Berk, 2000). For example, the interaction between parents and teachers could involve parents attending soccer or netball games at school or attending a fund-raising program at school.

The exosystem consists of the micro and meso systems. The exosystem consists of social structures and role players such as parents' work environments and extended family which a child is not directly involved in but in which incidents occur that indirectly affect the processes within the immediate surroundings of the child, which in turn influences the child's development/school enrolment (Bronfenbrenner, 1994; Berns, 2012). To examine factors related to the exo-system using data from the GHS, questions that relate to household size, household income/socioeconomic status, parent's employment status, education level, household means of transport (whether a household own vehicle) were extracted and analyzed.

The macrosystem is the outermost part of the ecological systems. It consists of micro, meso, and exo-system features of a given “culture with particular reference to the belief systems, bodies of knowledge, material resources, customs, lifestyles, opportunity structures, hazards and life course options that are embedded in each of these broader systems” (Bronfenbrenner, 1994, p.40). The

theory goes further to explain the importance of going beyond the “labels of class and culture to identify more specific social and psychological features at the macrosystem that ultimately affect the conditions and processes occurring in the microsystem” (Bronfenbrenner, 1994, p. 40). In other words, it is essential to identify the structures in the macrosystem that influence a child’s development and school enrolment. To explore the factors at the macro level, questions connected to place of residence, race, and province, were identified from the GHS data.

The Chronosystem is the final layer of the Ecological Systems theory of Bronfenbrenner. It comprises the changes in the environment that happen over time that affect the growth and progress of a child and can be major life transitions such as the death or divorce of a child’s parents (Guy-Evans, 2020). The biological changes that occur as a child grows older may cause him or her to react differently to environmental changes and determine how the changes will affect him or her (Bronfenbrenner, 1979).

1.8 Definition of key words

Some of the key words used frequently in this study are described below:

1.8.1. Disability

Disability is a condition that limits/restricts a person from performing an activity in a form perceived as normal for human beings. It can be physical or intellectual or sensory or a combination of the above.

1.8.2. Children with disabilities

This refers to children with physical or sensory or intellectual condition that prevents them from acting/ performing activities like those considered as normal human beings.

1.8.3. School Enrolment

This refers to having access to schooling/the process of being registered in school as a student/learner.

1.9 Conclusion

Access to schooling for disabled children has long been an issue of concern both locally and internationally, thus justifying the focus of this study on investigating the factors related to the school enrolment of disabled children in South Africa. This chapter has discussed the problem the

study investigated and the purpose of the investigation. The chapter has also provided an overview to situate the investigation in relation to the posed research questions and theoretical framework selected for the study.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents a critical review of literature that draws on both international and local perspectives on factors that influence the enrolment of children with disabilities in school in order to engage in a better understanding of the circumstances, reasons for, and implications of continued educational marginalization of disabled children.

2.2 Disability issue

Disability remains widely understood in some cultures as a misfortune and has a heavy stigma and a strong connotation such as being a curse or the result of witchcraft or angry ancestors (Moody & Gibson, 2011, as cited in Donohue & Bornman, 2014). Defining disability is complicated and controversial because disability is perceived differently in different contexts. “Disability is experienced differently depending on the norms of a particular society” (UNICEF, 2008, p. 8, as cited in Moyi, 2012). Thus, it is difficult to have a universal/common definition of disability. Defining disability based on society’s norms or conditions can assist in accurately identifying disabled children since the barriers they face are imposed by societal factors. The definition of disability developed from the medical model sees disability as a health condition in a person (UNICEF, 2008) that needs medical attention to the social model that sees it as a social construction on the basis that disabled people are “disabled by the society they live in and by the impact of that society’s structures and attitudes” (Purtell, 2013, p. 26, as cited in Retief & Letsosa, 2018). Without a universal definition of disability, the World Health Organization’s International Classification of Functioning, Disability and Health (ICF) provides a framework to understand and define disability. The ICF defines disability as the “umbrella term for impairments, activity limitations, and participation restrictions” (WHO, 2011, p. 4) and further emphasizes that disability results from the interaction between an impaired person with attitudinal and environmental barriers that prevent the disabled person’s “full and effective participation in society on an equal basis with others” (WHO, 2011, p. 4). Also, the Union of Physically Impaired Against Segregation (UPIAS) defines disability as “activity restriction caused by the contemporary social organization with little or no regard for people with impairments and excluding them from main activities in society life” (UPIAS, 1976, as cited in Anastasiou & Kauffman, 2011, p. 376). In terms of schooling, it is indicated that “Impairments that affect the capacity to communicate and interact in ways common in mainstream schools can impose high practical and social obstacles to participation in education”

(UNESCO, 2010, p.182). Disability can be caused by war, accidents, poverty, malnutrition, and poor access to health care, and in most cases, disabled people are seen as less human.

2.3 Importance of education for children with disabilities

The transition from early childhood to primary education should be a process that should be experienced by all children equally. But for disabled children, the transition is often challenging for them and their families, despite the emphasis that education is a right for every child regardless of whether they have a disability or not (UNESCO, 2003). “Exclusion of children with disabilities from education leads to their exclusion from social participation, reduces their personal well-being and welfare, and makes them depend on family members for care and support during school periods” (Alavi et al, 2012, as cited in Kuper .et al, 2014, p.6). Studies show that the cost of foregone income from the “exclusion of persons with disabilities from education and employment is estimated at 1.7% of gross domestic product” (World Bank, 2008, as cited in Kuper et al, 2014, p. 6). For these reasons, access to education is essential for disabled children. Education is an important instrument of social change that facilitates the inclusion of individuals in society’s social structures (UNESCO, 2003). It is vital for socialization. Through education, children acquire knowledge and learn skills essential for their development. Ensuring that disabled children have access to education contributes to the achievement of Sustainable Development Goal (SDG) 4 (UNESCO, 2015), which requires inclusive and quality education to promote learning opportunities for all. Education is the main channel by which adults and children with disabilities who are socially and economically marginalized can get out of poverty and gain the resources they need to participate fully in their communities (UNICEF, 2007). When people with disabilities are educated, it gives them the opportunity to be employed, which enables them to take care of their needs rather than depending solely on family for support.

Educating children with disabilities equips them, making them independent in later life. Through education, they receive important life skills that will enable them to be independent rather than dependent on their families (Mulenga, 2019). It lessens the family’s role as providers for the children even when they are adults. Education does not only have the power of bringing remarkable gains to people with and without disabilities but also of improving their social standing and talents (Organization for Economic Cooperation and Development {OECD}, 2013). It enables both

disabled and non-disabled people to live with dignity, to reach their full potential, to participate in development, and to improve the quality of life (UNESCO, 1990).

2.4 Inclusive education and disability in South Africa

South Africa's transition into democracy in 1994 led to a change in education policy framework and legislation. The purpose is to "heal the divisions of the past and create a society based on democratic values, social justice, and fundamental human rights, improve the quality of life of all citizens and free the potential of each person" (Republic of South African Constitution {RSA}, 1996). The education policy and legislation were amended to ensure that all citizens have the fundamental right to equal, equitable, non-discriminatory access to basic education and the improvement of schooling quality, and to make education practice align with global trends that focus on the inclusion of disabled children in mainstream schools (Engelbrecht, 2006, as cited in Geldenhuys & Wever, 2013). The focus has been on making education accessible to all children with or without disabilities who were denied or had limited access to education before. The treaties on international human rights such as the UN Convention on the Rights of a Child (UN, 1990), Convention on the Rights of Persons with Disabilities (UN, 2006), the Salamanca Framework of Action on Disability (UNESCO, 1994) and Education for All (EFA) (UNESCO, 1990) declaration influenced the education framework policy of South Africa. As a result, South Africa committed itself to extending advocacy programs such as White Paper on Integrated National Disability Strategy (INDS, 1997) that resulted in a paradigm shift from the medical model to the social model.

The social model considers all aspects of learning and guides the way access to school is envisaged for children with and without disabilities. It redefines disability and acknowledges "disability as a human right and development issue" (Oliver & Barnes, 2010, p. 548). Unlike the medical model, which considers only the intrinsic factors by looking at what is wrong with the child and tries to diagnose and fix the child (Llewellyn & Hogan, 2000, as cited in Moyi, 2017), the social model considers both the intrinsic and extrinsic factors impacting children's access to education including those with disabilities. The social model acknowledges that disabled children have specific impairments but are not "disabled by the impairments, rather they are disabled by society's structures and attitudes" (Purtell, 2013, p. 26, as cited in Retief & Letsosa, 2018) and that these barriers need to be addressed.

The Education White Paper 6 (DBE, 2001) was developed, and it forms the “ethos of the education system in South Africa and resonates with the constitution of South Africa that recognizes diversity and resists exclusivity” (Engelbrecht, Nel, Nel & Tlale, 2015, p.1). Crucial to inclusive education is addressing different needs of learners in an undivided school system and providing support services to learners and teachers so that all children regardless of their individual needs can develop their potential and participate as full members of society (DBE, 2001). Inclusive education supports the principles of social justice, participation, a healthy environment, equal and equitable access to education (DBE, 2001; Muthukrishna, Morojele, Naidoo, & D’Amant, 2016). It recognizes that disabled children have specific impairments and need to be supported for their schooling. To ensure that appropriate support is provided for disabled children, White Paper 6 (WP6) makes provisions such as the “formation of district and school support teams to assist teachers, professional development of teachers, procedures for early identification of learning difficulties through the use of the Screening, Identification, Assessment and Support policy (SIAS), converting some mainstream schools into full service schools and strengthening of special schools to become resource centers” (DBE, 2015, p. 8).

The South African government has protected and promoted the wellbeing of children with disabilities through legislative and policy reform and the provision of social assistance and free healthcare (Seekings and Nattrass 2014). However, the school enrolment of disabled children is lower than that of non-disabled children. This is due to the various challenges that disabled children and their parents experience. South Africa is a signatory to the Convention on the Rights of Persons with Disabilities (CRPD) (UN, 2006), which states that disabled children should be supported to be in schools without facing any discrimination (Deghaye, 2021). The focus of South Africa being a signatory to the Convention on the Rights of Persons with Disabilities (CRPD) (UN, 2006) is for disabled children to gain entry to mainstream education with the objective of removing disability-based discrimination against children with disabilities in educational settings and to provide inclusive education at all levels (INDS, 1997). However, the progress made by the country to ensure that there is inclusive education for children with disabilities is very slow. The South African Constitution emphasizes basic education for all children without discrimination. However, children with disabilities are discriminated against as they are made to pay school fees (HRW, 2019), though in 2007, the country was one of the first to ratify the UN Disability Rights

Treaty, which gives the government a mandate to promote inclusive education (Mutua & Dimitrov, 2001).

Despite the South African policy and Education White Paper 6 on inclusive education for children with disabilities' call and provision to provide right support to all children with and without disabilities, the literature reveals that what is in the policy is different from what is happening in practice, with "70% of the children of school-going age with disabilities continuing to be out of school" (Donohue & Bornman, 2014, p. 3). The difficulty in implementing inclusive education in South African schools is the reason many children with disabilities do not have access to schooling. Studies indicate that challenges such as ambiguity in inclusive policy and the issues concerning the poor implementation of this policy make inclusive education implementation difficult in schools. The poor implementation is due to inadequate provision of funds to the provincial department of education by the national department of education and unclear directives and guidelines given to teachers (Donohue & Borman, 2014). The lack of skills due to the lack of proper training required in teaching learners with disabilities, teachers' attitudes towards children with disabilities in the classroom, and resources (Engelbrecht et al., 2015; Singal, 2016) hinder the implementation of inclusive education in South African schools. As a result, disabled children are sent back to special school. There is still a major default back to special education in South Africa where disabled children who are enrolled in school are still in separate special needs schools despite the calls by the government for the children to be included in mainstream schools (Engelbrecht et al., 2016, Donohue & Bornman, 2014). The default back to special education is in part due to Education White Paper 6 (EWP6) dependency on medical model approach and its recommendation of learners' school enrolment according to their needs. For example, learners who require minimal intensive support should attend mainstream schools (DBE, 2001). To address economic inequalities, it is essential for disabled children to gain access to education similar to their counterparts who are not disabled (Deghaye, 2021).

2.5 Factors that influence school enrolment of children with disabilities

In South Africa, most disabled children who are of school age are not in schools. This is due to the country's scarcity of special needs schools. The parents of disabled children experience challenges in securing schools with resources that meet the needs of their children (Montes & Halterman, 2007 in Mabuza & de Beer, 2017). Due to the costs associated with educating a child with a disability, parents often decide to send children without disabilities to school leaving the disabled

ones to stay at home. The socio-economic status of parents or guardians of disabled children is vital in determining whether the children will be enrolled in school or not. Inclusive education is quite impossible in poor resource contexts (van der Mark, Conradie, Dedding, & Broerse, 2019). To achieve inclusive education among disabled children it is vital for policies to recognize the socio-economic status of the care- givers of the children (van der Mark et al., 2019).

Most studies on disabled children in the country are qualitative and do not focus on the entire country. Studies that focus on the school enrollment of children with disabilities in South Africa are scarce. This could be due to a lack of data on disabled children. The existing qualitative studies that discuss some aspects of school enrolment among children with disabilities do so in passing without dwelling much on the determinants of school enrolment. According to the studies, disabled children have difficulties enrolling in schools, but the factors that enhance or influence their enrolment in schools have not been studied. The existing studies cannot be generalized to the entire country due to their qualitative nature.

2.5.1. Household factors

In this section, household factors such as socio-economic status and school enrolment, the role of parental income level on school enrolment, parental level of education and school enrolment, the head of household's influence on school enrolment, the impact of school fees requirements on school enrolment, employment status and school enrolment, and race were discussed.

2.5.1.1. *Socio-economic status and school enrolment.*

Families with disabled children are the most marginalized groups in South Africa (van der Mark et al., 2019). The families are often from a lower socio-economic status and live in poor communities. The socioeconomic status of parents influences children's access to education, particularly in special needs schools. A higher socio-economic status allows parents to take their children with disabilities to schools that offer the best education (Smit et al., 2007). Children from families with a higher socio-economic status have a greater likelihood of being enrolled in school (Moyi, 2017). These parents can decide where their children can learn because of the availability of resources. Meanwhile, a low socio-economic status leaves parents with disabled children with no choice but to keep their children at home because of their inability to afford special needs schools (Mulenga, 2019). In some instances, the poor parents end up with their disabled children in schools that are close to them but lack the best learning services for their children.

Due to the costs associated with education, parents make decisions about which of their children should be sent to school. Disabled children are not sent to school if there are other children in the family without special needs. Parents might see it as not economically feasible to have their disabled child sent to school; they would rather send children without disabilities because they are believed to be able to bring in income after completing their studies (Donohue & Bornman, 2014). Such decisions are made because of poverty in households. Poverty in many ways affects the school enrolment of children with disabilities because the schools require parents to pay school fees. Disability is made worse by poverty as it results in barriers to education (UNESCO, 2010; Limaye, 2016). “Poverty is said to be closely associated with exclusion because when poor families do not have money for school fees, uniforms, books, stationary and assertive devices, it becomes challenging to send their disabled children to school” (Motala & Dieltiens, 2010, p.3). Living in poverty makes it impossible for parents to pay the costs associated with their disabled children’s school enrolment. Poverty as a barrier to the school enrollment of disabled children is a common occurrence in most nations in sub-Saharan Africa. Similar to South Africa, poor households in Uganda and Zambia found it difficult to send their disabled children to school (Mulenga, 2019; Najjingo, 2009). The parents had no income to pay school fees for their children.

2.5.1.2. The role of parental income level on school enrolment

Income plays a key role in determining whether disabled children will be enrolled in school or not. Families with lower levels of income are most likely not to enroll children with disabilities in school due to affordability. In most instances, mothers take care of their children with special needs on their own (van der Mark et al., 2019). The mothers of disabled children often engage in time consuming activities such as offering 24-hour care for their children which results in a loss of income (Gona et al., 2014). Income loss makes it difficult for mothers to be able to send their children to school considering the increased costs of special needs schools. The care dependency grant they receive is not enough to cover the school costs since the special needs schools are expensive. For those working, they are employed in low paying jobs such as being employed as a domestic worker, security guards, and creche assistants (van der Mark et al., 2019). Not only do mothers of disabled children in South Africa have lower levels of income, but this is also a problem faced by several women in most parts of sub-Saharan Africa where they earn lower income compared to men (Hakura et al., 2016). In Uganda, households with a higher wealth index had a decreased likelihood of their children not enrolling in school and dropping out of school (Kuno et

al., 2021). In other words, children from rich families have increased opportunities of enrolling in schools compared to those from poor households (Kuno et al., 2021). The wealth status of households can be improved if the household heads are educated. But this can be difficult to attain in South Africa considering the high levels of unemployment even among those who are educated (Van Broekhuizen, 2016).

2.5.1.3. *Parental Level of Education and School Enrollment*

The level of education of the parents is critical in determining whether or not children with disabilities will be enrolled in school. When the head of the household is more educated, there is a greater likelihood of disabled children being enrolled in school (Moyi, 2017). Parents who are highly educated ensure that their children are enrolled in school. Some mothers of disabled children do not have more than secondary education. They live without a spouse and depend on the government's Care Dependency Grant. Even though they are not educated, mothers might see the importance of sending their children to school. However, due to a lack of education, they lack the resources to send their children to school. Household heads who are educated can be employed, having an income that allows them to send their children to school (Kuno et al., 2021).

A study conducted in Uganda indicated that household heads with primary education had a decreased likelihood of their children not enrolling in school compared to those from households with no education. A household head with secondary education compared to that with no education had reduced odds of children never enrolling in school (Kuno et al., 2021). Mothers with primary level education had lower odds of their children never enrolling in school compared to those with no education. Mothers with secondary or higher education had reduced odds of children never enrolling in school compared to those with no education (Kuno et al., 2021). In rural Zambia, uneducated parents did not understand the importance of sending their children with special needs to school because of their own level of education (Mulenga, 2019). In South Africa, no studies have looked at the role of parental education in the school enrolment of children with disabilities.

2.5.1.4. *Head of household's influence on school enrolment*

The head of household plays a role in the school enrolment of disabled children. When the disabled children belong to the head of the household, there is a greater likelihood of the children being enrolled in school compared to non-biological children (Moyi, 2017). The majority of disabled

children in South Africa are raised by single mothers. The mothers often struggle to enroll their children to school because they are unemployed. The mothers spend most of their time looking after their disabled children (van der Mark et al., 2019). A study in Kenya indicated that households with a single parent compared to those with both biological parents were connected with a lower likelihood of children never enrolling in school (Kuno et al., 2021). Households which do not have biological parents compared to those with two biological parents had a decreased likelihood of children never enrolling in school (Kuno et al., 2021).

2.5.1.5. *School fee requirement's impact on school enrolment*

Public special needs schools require parents to pay school fees, yet in public schools for children without disabilities, no school fees are required (Human Rights Watch, 2019; Mabuza & de Beer, 2017). Even in mainstream schools, children with special needs are expected to pay additional fees that are not charged for children without disabilities (HRW, 2019). This affects children from disadvantaged or underprivileged families or communities. Therefore, parents who are poor are excluded from making decisions about where their children must learn (Mabuza & de Beer, 2017). Meanwhile, some of the poor parents just decide that they cannot afford to enroll their children in school.

There are schools which are on the 'no fees list' in the country, which accommodate children from low-income backgrounds. However, the special needs schools are not on the list, it is not known why the schools are not on the list, yet there are also disabled children from low-income backgrounds (Martinez, 2017). Charging fees for disabled children limits their access to education. There have been calls for the government to treat children with disabilities equally as those without disabilities. Inclusive education can be attained when the government fulfils its policy by ensuring that mainstream schools are accessible to disabled children (Martinez, 2017).

2.5.1.6. *Employment status and school enrolment*

Unemployment in South Africa is a major issue that is affecting families. Parents who are unemployed are not able to enroll their children with disabilities in school. In rural areas, most parents are unemployed, and this has left them unable to enroll their disabled children in school. As previously mentioned, the special needs schools require one to be financially stable to afford the costs of the schools (Mabuza & de Beer, 2017). The disability of the children contributes to the unemployment status of some parents, particularly mothers. Some mothers choose not to work

so that they can be available for their children with disabilities (Mabuza & de Beer, 2017), while some are forced to quit their jobs to take care of their children due to lack of schools that can accommodate them (Beckmann & Reyneke, 2021; Macupe, 2020). Unemployment makes them unable to find schools that are resourceful and offer the best education. Some parents would wish they could afford to get a half day job so that when their child knocks off from school at 1pm they will be available to fetch them. Special needs schools charge exorbitant fees which makes them not accessible to children from poor or low socio-economic backgrounds, since in most cases their parents are unemployed.

2.5.1.7. *Race*

Most black children with special needs in South Africa are from poor backgrounds and communities. Living in poor communities limits their access to special needs schools because in such environments there are few or no special needs schools. Black disabled children from rural South Africa struggle to find schools (SAHRC, 2016). The burden faced by most black disabled children in terms of access to education is disproportionately high. They survive on the Care Dependency Grant, which is not enough to cover the expenses involved in enrolling in special needs schools.

2.5.2. COMMUNITY FACTORS

This section presents the discussion of the community factors such as shortage of special needs schools, distance to school, province and disability, place of residence, transportation, inadequate resources in some special needs schools, Covid-19 exclusion of learners with disabilities and discrimination/stigma's impact on school enrolment.

2.5.2.1 *Shortage of special needs schools*

A shortage of specialised schools in South Africa continues to affect children with special needs. In communities where children with disabilities live, the special needs schools are limited, this has affected their enrolment in schools (Macupe, 2020). Yet mainstream schools are many and located in communities where people live in. Due to the lack of specialised schools in the country, parents struggle to find appropriate schools for their children (Kamga, 2020; Donohue & Borman, 2014). Meanwhile, there are plenty of schools for children without special needs that parents can choose from. Disabled children are supposed to be in the same neighbourhood schools as their non-

disabled peers, but this is not happening because of the “prevailing negative attitudes of teachers” and non-disabled learners towards disability which make mainstream schools uninviting for disabled children (Bornman & Rose, 2010, p.7). In addition, teachers lacking adequate training, skills, and support, plus curriculum rigidity and bullying do not make mainstream schools inviting places for children with disabilities (Dieltiens & Motala, 2010; Das, Gichuru & Singh, 2013). Such discrepancies show that the country is experiencing challenges in ensuring inclusive education. The limited number of schools has seen most parents not having a choice when it comes to securing a school for their children (Donohue & Borman, 2014). It is estimated that there are not more than 500 special needs schools in the country (Macupe, 2020).

Searching for a special school is a long process that sees parents moving from one place to another. This is because the existing special needs schools scattered throughout the country are often situated far from the communities they serve (Mabuza & de Beer, 2017). As a result, children with disabilities reach the age of between 7-12 years without having attended a pre-school or elementary school (Mabuza & de Beer, 2017). Some of the children’s time is spent waiting to be assessed to identify the type of disability they have. By so doing, the children will be out of school, resulting in most children reaching the ages of 8 and 10 without having attended school (Fraser, 2019). Shortages of special needs schools are not only an issue in South Africa. It is a widespread problem in most countries in sub-Saharan Africa. In Kenya and Zambia, children with disabilities suffer because of a lack of schools. The existing schools are often located far from communities, with some of the schools lacking vital facilities for disabled children (Mulenga, 2019).

There is a lack of affordable early childhood development (ECD) schools for children with disabilities in the country between the ages of 0 and 4 years old. Parents often struggle to find affordable creches for their children. Private ECDs are expensive, and this contributes to parents’ decisions to not send their children to school (Storbeck & Moodley, 2011). Lack of funds has contributed to a shortage of special ECD schools in the country (Storbeck & Moodley, 2011). Lack of ECD schools impedes the development of the children’s essential social skills.

2.5.2.2 Distance to school

Mainstream schools are located close to communities, while special needs ones are situated far from them (Limaye, 2016). The special needs schools are mostly private and expensive so poor

parents cannot afford them. The ELSEN¹ number issued by the department of education often points parents to schools far from their communities. Poor parents must go forth and backwards to the department of education for the ELSEN number to be changed, particularly when they discover that the referred special needs school is expensive. The department of education issues out ELSEN numbers based on the level of disability of the child without checking the distance or location of the school. As a result, parents will have to pay more for transportation. This sees parents being forced to pay more for transport. This results in the parents looking for schools near them, even if the special needs school does not suit the needs of their disabled children. South Africa is not the only country where special needs schools are located in remote areas. It is a common occurrence in most countries in sub-Saharan Africa. In Kenya and Zambia, the issue of distance between school and home affects the school enrolment of children with special needs particularly when schools are far from where the children live (Mulenga, 2019).

It seems most countries in sub-Saharan Africa are battling to ensure that children with disabilities receive full support, which facilitates school enrollment. Some learners with disabilities face mobility challenges. Schools located far from home may imply that in the absence of reliable transportation, learners who have challenges walking will miss school, especially if parents cannot afford to pay for transportation or boarding school (Mulenga, 2019, Moyi, 2017).

2.5.2.3 Province and disability

There are differences in the allocation of resources channeled towards disability inclusive education within provinces in the country (Du Plessis, 2013). Some provinces are better equipped than others in terms of special needs education. This makes inclusive education a theory that exists only on paper without being put into practice. Parents with disabled children residing outside Gauteng province often struggle to find schools in their areas due to a lack of schools. Available schools are private, and this requires parents to pay, which in most cases, is impossible since most parents cannot afford the fees. This leaves some parents with no choice but to contemplate relocating to other provinces in search of a school that they can afford (Macupe, 2020). But for some, leaving is not a solution, as they end up making decisions to make the child stay at home without going to school (Macupe, 2020).

2.5.2.4 Place of residence

Place of residence also plays a part in the school enrollment of disabled children. Disabled children from rural areas are largely disadvantaged compared to those in urban areas in terms of access to education. There is a shortage of specialised schools in most rural areas of South Africa, which makes most children with special needs stay out of school. A group of children from the rural area of Daggakraal in Mpumalanga were said not to be in school due to a lack of schools in the area (Macupe, 2020). The available schools in rural areas have inadequate resources making them not fully equipped to meet the educational needs of children with special needs (Mabuza & de Beer, 2017). Special needs schools in urban areas are better resourced compared to those in rural areas (Mabuza & de Beer, 2017). The rural areas of most countries in sub-Saharan Africa lack special needs schools (UNESCO, 2010). The available schools are located far away. This explains why children with disabilities from rural areas have a lower likelihood of being enrolled in school (Moyi, 2017). The roads in rural areas are bad enough that parents must walk long hours to reach the nearest special needs school since they cannot afford transport costs (John, 2014).

2.5.2.5 Transportation

Access to school transportation is a major issue for disabled children, particularly those whose parents are poor. Research findings show that transport to and from school is the biggest problem in providing access to school for children with disabilities (Hastings, 1996). In the Northern Cape, school going children with special needs share a bus with the provincial department of education since the department is failing to get the learners their own transport to school. When the department requires using the bus it means there will be no school for the learners on that day (Macupe, 2020). In Limpopo province, the parents with disabled children had to buy a bus to take their children to school (Macupe, 2020). However, most parents cannot afford school fees or to pay for transportation to take their children to schools which are often located far from their communities (Martinez, 2017). The “costs for special needs schools to provide transport constitute one of the most serious challenges that children with disabilities face” (DBE, 2015, p. 51).

Failure to provide reliable transport for school children with disabilities often led them to drop out of school (Mulenga, 2019). Children with disabilities who are unable to walk to school and whose parents cannot afford transport costs also end up dropping out of school or not being enrolled at

all (Moyi, 2017). Some children require wheelchairs, which parents find costly to provide due to poverty (Moyi, 2017). Some mothers who have disabled children rely on public transport. These mothers are sometimes refused by taxi drivers to board the minibuses with the wheelchairs of their disabled children (van der Mark et al., 2019). In such circumstances, mothers are left with no choice but to stay grounded at home and are not able to send their children to school or health care facilities (van der Mark et al., 2019). A study in Zambia showed that the availability of transport to take children with disabilities to school influenced the school enrolment of learners with disabilities (Mulenga, 2019).

2.5.2.6 Inadequate resources in some special needs school

Special needs schools located near communities frequently lack adequate resources. Some schools lack access to water and electricity (HRW, 2019). In some schools, water is transported to the schools by trucks, but sometimes the trucks fail to deliver the water to the schools. When there is no water, children are sent home. This has led to some parents removing their children from school and looking for alternative schools. Some parents make their children completely stop attending school. This goes back to the issue of affordability, if the parents cannot afford to look for a school that is far from them, they simply decide to keep their children at home. In some special needs schools, the teachers lack training in special needs education (Singal, 2016; Deghaye, 2021). This affects their ability to teach learners with disabilities. This makes some learners leave school without acquiring any skills to equip them for their lives (DSD, DWCPD & UNICEF, 2012).

Human Rights Watch (HRW, 2019) conducted interviews with parents of disabled children and reviewed the challenges the parents encountered and shared with Sidinga Uthando, a group that fights for the inclusion of disabled children in Orange Farm, Johannesburg. Parents expressed how their children were removed from mainstream schools after being deemed slow learners, forcing them to take their children to special needs schools. Transferring their children to special needs schools seems to have worsened their situation because the schools did not have specific grades. The children were placed at levels where they ended up not learning anything that would assist them after leaving school. In special needs schools, the teachers often call the learners' names (Duma et al., 2021).

The physical facilities or environment of special needs schools are often characterized by a lack of resources (UNICEF, 2016). Inaccessible school buildings, lack of learning materials, ramps, assistive devices, and disabled friendly toilets, and the “inability of children with disabilities to

access school buildings and toilets or use one independently resulted in low school attendance and dropping out in most cases” (Muthukrishna et al., 2016; Singal, 2016, p. 177).

Inadequate equipment, vital for learners with disabilities, affects their school enrollment. When schools lack facilities that support learning of disabled learners, it results in parents not enrolling their children in school. In Kenya, the lack of accessible facilities such as wheelchair-accessible doorways, accessible toilets, sitting areas, and desks contributed to increased school absence and dropout rates (Kuno et al., 2021).

Schools that have facilities that enhance effective learning attract learners with disabilities. Also, teachers should ensure that their teaching approaches address the needs of children with disabilities (Mulenga, 2019). The issue of inadequate resources in schools for learners with disabilities is widespread in sub-Saharan Africa. South Africa also struggle with equipping the schools due to a lack of funds. This is similar to countries like Zambia, Kenya, the Comoros, and Uganda (UNICEF, 2016; Kipkosgei, 2013; Mulenga, 2019; Mutisiya, 2010). Lack of adequate teaching and learning materials as well as a curriculum that does not address the needs of disabled learners contribute to their low or lack of school enrollment (Kipkosgei, 2013). Adolescents with disabilities often complete school without the basic life skills that should have been taught while in school (Mckenzie, Vergunst, Samuels, & Henkeman, 2020). This makes them struggle to be employed.

2.5.2.7 Covid-19 and exclusion of learners with disabilities

Prior to the Covid-19 pandemic, disabled children were being excluded from school. The learners are excluded from both mainstream schools and special needs schools. This moves away from the Convention on the Rights of People with Disabilities (CRPD) obligations that children with disabilities should not be excluded from free basic education (Kamga, 2020). Under the CRPD, disabled learners should be included in mainstream schools, but this can only happen when they are offered support (Kamga, 2020). The emergence of the pandemic further exacerbated the situation because of its move to e-learning (Kamga, 2020). The move to online education was unfair and discriminated against learners with disabilities, depriving them of their rights to education. The COVID-19 pandemic increased the risk of children with disabilities being excluded from learning.

2.5.2.8 Discrimination/stigma's impact on school enrolment

The inclusion of disabled children in schools is also affected by discriminatory attitudes. Children with disabilities are often discriminated against in schools by teachers and other learners without

disabilities. Some of the teachers have negative attitudes towards learners with disabilities (Limaye, 2016). Learners without disabilities often tease the disabled learners for their slow progress in learning (Duma et al., 2021). Discrimination of this kind humiliates disabled students and leads to their exclusion (UNICEF, 2016). In such circumstances, some parents decide not to enroll their children in school and in some instances the learners stop attending school due to the negative treatment they receive (Mulenga, 2019). Learners look up to the educators, but the educators too are involved in the humiliation of the learners (Duma et al., 2021). The teachers due to lack of training often see the disabled learners as problematic. Discrimination against disabled children is common in different areas of the globe including sub-Saharan Africa.

Being disabled carries stigma in society, which often results in the children being excluded from society and school. Studies indicate that in Isolo, Kenya, a disabled child is kept away from the family home and tethered in a goats' pen because the child is considered an abomination (National Gender Equality Commission {NGEC}, 2016). Mothers of disabled children are blamed by their families and communities for their children's disabilities due to the perception that disability is a result of angry ancestors, or a parent's sin (Daudji et al., 2011 in Donohue & Bornman, 2014). It is frowned upon for a woman to give birth to a disabled child, if it occurs, the woman will be evicted from her marital residence (NGEC, 2016). Because of stigmatisation and societal negative attitudes, most parents hide their children to avoid being embarrassed. The stigma that parents experience because of having disabled children discourages some parents from enrolling their disabled children in school (UNESCO, 2010).

In South Africa, some disabled children suffer physical violence and neglect in schools (Mckenzie et al., 2020). The government discriminates against children with disabilities through its allocation of schools, where the children are excluded from mainstream schools (Mckenzie et al., 2020). This forces the children to wait for a long time before they get places at special schools. There are inequalities in the treatment of disabled learners and those without disabilities. They do not experience success at the same level as their peers without disabilities (Mckenzie et al., 2020). In 2018, the Department of Basic Education's National Senior Certificate Examination Report showed that of 624 733 learners who wrote the matriculation exam only 3 856 had special educational needs, which is only 0.6%, yet the national disability prevalence rate is 7.5% (Mckenzie et al., 2020). In some cases, children who are disabled are refused admission in schools because of their disability. Some mothers whose children were still in nappies were not offered a

place at the school because they were said to be too old to be wearing a nappy (van der Mark et al., 2019). The negative attitudes of the community towards disability makes parents of disabled children not to be at ease. The children experience verbal and physical abuse, such behaviour makes the parents live in fear because their children are targeted (van der Mark et al., 2019).

2.6 Conclusion

While several studies have reported on the factors that affect the enrolment of children with disabilities in the South African school system, what is clear is that most of the studies are qualitative in nature. Some of the findings are based on studies whose focus is on other issues. Another issue here is that not much is known about the social ecological factors that influence the level of school enrollment for children with disabilities. To expand educational enrolment and to achieve the expected increase in school enrolment of children with disabilities and Goal 4 of the Sustainable Development Agenda, this study is important to identify and examine factors that predict the enrolment of children with disabilities in South African schools.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This study explored the factors that influence the school enrollment of children with disabilities in South Africa. The aim is to examine the level of disabled children's school enrolment and the individual, household, and community factors that influence their enrolment in school. The individual, household, and community variables were selected from the South Africa General Household Survey data of 2020. This chapter presents an outline of the research methods that were used in the study. It provides information on the research paradigm and its components, research design, data source, sample size and sampling methods, and data collection.

3.2 Research paradigm

A paradigm is a primary set of views or worldview that directs research actions or exploration (Guba & Lincoln, 1994, as cited in Kivunja & Kuyini, 2017). A paradigm has axiology, ontology, epistemology, and methodology as its components. The study used a positivist paradigm.

3.2.1. Positivist paradigm

Positivist paradigm is described as a worldview of research that is based on scientific methodology. Scientific methodology lays emphasis on "observation, experimentation", measurement of phenomena, and "reason based on experience" as essential for increasing knowledge and developing understanding. It is used to explore "cause and effect relationships" in a phenomenon (Comte, 1856, as cited in Kivunja & Kuyini, 2017, p.30). Positivist paradigm research depends on "deductive logic, the formation and testing of hypotheses, offering operational definitions, mathematical equations, calculations, extrapolation, and expressions" to arrive at a conclusion. It seeks to give clarifications and make forecasts based on quantifiable results (Kivunja & Kuyini, 2017, p.30). The quantifiable results are supported by four assumptions, of which determinism is one. The assumption of determinism means that the phenomenon under observation is brought about by other factors. So, to comprehend the temporary relationships among the factors, it is important to guess and control the possible effects of the explanatory variables on dependent variables. Due to the assumptions, the Positivist paradigm recommends quantitative research techniques as the cornerstone for the researcher's capacity to be exact/specific in describing the parameters and coefficients in the obtained, evaluated, and explained data to understand

relationships enclosed in the evaluated data (Cohen, Manion, & Morrison, 2000, as cited in Kivunja & Kuyini, 2017).

The epistemology of the positivist paradigm is objectivist, which means that human knowledge is acquired by applying reasoning. This indicates that knowledge gained by means of research helps to understand the real nature of what is being explored (Fadhel, 2002, as cited in Kivunja & Kuyini, 2017). Its ontology is naïve realism; it is believed that the knowledge of existing objects can be perceived by means of the senses (vision, hearing, taste, touch, and smell), which makes it easy to say that such objects exist, and are real (Putnam, 2012; Searie, 2015, as cited in Kivunja & Kuyini, 2017). Its axiology is beneficence. This means that in conducting research, any risk, harm, or wrong that can affect the participants' rights and peace should be avoided or minimised (Mertens, 2015, as cited in Kivunja & Kuyini, 2017). Lastly, its methodology is experimental which entails manipulating a variable to see if the changes therein bring about change in another variable (Smith & Heshuisus, 1986, as cited in Kivunja & Kuyini, 2017).

In relation to this study, the positivist paradigm is suitable, as the study used a quantitative research method that involved mathematical equations and calculations to obtain qualifiable results such as the level of disabled children's enrolment in school. Statistical techniques were used to analyze the data. The selected variables from the General Household Survey data were tested for their effects on school enrolment of children with disabilities to understand the factors that influence enrolment of children with disabilities in school.

3.2.2. Axiology

Axiology is concerned with the ethical issues to be considered when conducting a research project. It emphasises the regard for human values and the rights of the participants involved in the research project. According to Kivunja and Kuyini (2017, p.28), axiology involves "Defining, evaluating and understanding the concepts of right and wrong behaviour relating to research". It considers the types of values held and adhered to, and how those values inform the type of paradigm to be used (Mertens, 2009). Axiologically, less value is placed on people with disabilities in most contexts, which results in their economic and educational marginalization. Therefore, an ethics clearance waiver was obtained for this study. This study explored the level of school enrollment of children

with disabilities and the factors that influence their enrollment using the General Household Survey data and the Bronfenbrenner Ecological Systems theory.

3.2.3. Ontology

Ontology is defined as the “nature of reality or existence”, and the basic kinds of things that exist and their relations. It also assists the researcher to visualise the shape and nature of reality and what s/he can learn about that reality (Husam & Abraham, 2020; Kivunja & Kuyini, 2017, p.27). Something is assumed to be real if it exists. It is believed that multiple realities are possible, and that they are socially constructed. Understanding that multiple realities are socially constructed, it is essential to “explicitly identify the social, political, cultural, economic, gender, and disability values that underlie definitions of realities” (Mertens, 2009, p. 48).

Ontologically, disability is real because it does exist and takes different forms. The reality of impairments is recognized, but the economic, environmental, and social barriers that hinder people with impairments need to be identified and addressed (Oliver & Barnes, 2010). It is a reality that there are children with disabilities in South Africa whose school enrollment is hindered by socioeconomic, cultural, environmental, and community barriers. Using the General Household data and the Bronfenbrenner Ecological Systems theory, the individual, household and community variables, which are in the microsystem, exosystem and macrosystem of Bronfenbrenner Ecological Systems theory are used to explore the factors influencing the school enrolment of disabled children.

3.2.4. Epistemology

This concerns itself with the nature of knowledge. Epistemology is used in research to explain how a researcher knows what s/he considers to be reality or truth (Kivunja & Kuyini, 2017), and how s/he intends to discover the knowledge to get to reality (Husam & Abraham, 2020). It is of the “notion that knowledge is constructed in the context of power and privilege” (Mertens, 2009, p. 48), hence, epistemology examines what is claimed as valid knowledge, the grounds that made the knowledge valid, who is the knower, the views the knower holds, which include how the knower comes to know something, and what constitutes the knowledge itself (Mertens, 2009). Relating to this study, it is about understanding how reality is constructed for the participants in this study by engaging with their lived experiences as reported in the General Household Survey data.

Epistemologically, to understand true knowledge, there is a need for relationships between the researcher and the participants so that accurate knowledge will be revealed. Oliver and Barnes (2010) argue for the inclusion of disabled people in any research about disabled people so that the truth about their needs will be made known. Since this study made use of secondary data, there was no relationship between the researcher and the participants. This study used the already collected data of the 2020 General Household Survey (GHS, 2020) to explore the individual, household, community/societal factors at the microsystem, exosystem and macrosystem level of Bronfenbrenner Ecological Systems Theory that influence the school enrolment of children with disabilities. The findings of this study may shed light on the factors that enable or prevent the school enrolment of disabled children and may assist in transforming their school enrolment.

3.2.5. Research methodology

This entails the procedures to be used in carrying out research. According to Igwenagu (2016), methodology is concerned with the design procedure for doing research. In other words, it is a general research plan that indicates the way a research project should be conducted and the method to be used. Understanding the values, realities and views of knowledge determines the method to be used and helps to reframe the understanding of one's worldview and methodological decisions (Mertens, 2009).

Relating to this study, the quantitative research method was employed because it helps in comprehending research findings in more depth and breadth and gives room for the reconstruction of information gained in a particular context. For example, the General Household Survey data used in this study was reconstructed to extract information on the level of disabled children's school enrolment and the individual, household, and community factors that influence their school enrolment. According to Bryman (2012, p.35), quantitative research is defined as "A research strategy that emphasizes quantification in the collection and analysis of data". In other words, it works with numerical data and answers questions like what, and how many. Quantitative research lays emphasis on measuring variables that exist in data which can be numerically represented as frequencies whose associations with each other can be examined using statistical techniques (Rahman, 2016) to obtain results. The analysis of this study was done using statistical techniques to obtain answers to the research questions, which are the level of disabled children's school enrolment and the individual, household, and community factors that influence their enrolment.

3.3 Research design

Research design is a plan of investigation envisaged to obtain answers to research questions (Kumar, 2011). This is a secondary data and analytical study. The study is an analytical cross-sectional one of the 2020 General Household Survey dataset of children aged 5-18 years with disabilities. Analytical cross-sectional research is a kind of “quantitative, non-experimental research design” (Schmidt & Brown, 2019, p. 206) in which data is collected from different individuals at a particular point in time (Thomas, 2022). In an analytical cross-sectional study, a variable is kept constant (independent variable), and it cannot be influenced by the researcher. The purpose of an analytical cross-sectional study is to quantify the “relationships and associations between two or more variables in the data analysis process” (Zangirolami-Raimundo, Echeimberg & Leone, 2018, p. 2). It aims to relate and assess the features of a population and seeks to examine how common particular events are in a population. This study made use of the already collected GHS 2020 data to explore the relationships and associations between the school enrolment of children with disabilities and the factors influencing the school enrolment. The level of school enrolment of children with disabilities was assessed and the factors influencing their enrolment in school were examined. School enrolment is the only independent variable that cannot be influenced in this study. This study used an analytical cross-sectional design because it matches the study data analysis and the study aimed at finding out the school enrolment of children with disabilities which is a section of the population data being used. This data is easily accessible and can be used to answer research questions and understand the social context of school enrollment for children with disabilities in South Africa.

3.4 Data source

This study used secondary data from the General Household Survey of 2020, which was the most current population-based survey in the country. The General Household Survey is an annual household survey done by Statistics South Africa (Statssa), which covers usual residents of households, including residents in workers’ hostels, in the nine provinces of South Africa. The survey excludes individuals living in student hostels, old age homes, hospitals, prisons, and military barracks. The aim of the survey is to measure the living circumstances of South African households and examine the levels of development in the country. The survey highlights the extent of service delivery and the quality of service in various service areas such as health, education,

housing, energy, transport and many others. This survey was chosen because it has national coverage (Statssa, 2020). The General Household Survey data has open access.

3.5 Sample size and sampling methods

The sample for this study was based on 8896 households and 34370 individuals who were involved in the 2020 General Household Survey (GHS, 2020). The preliminary analysis showed that there were 2599 disabled persons in households with disabled persons who were in the age group of 5 years and older. Among the 2599 persons with disabilities, the final sample included 140 disabled children, ranging in age 5 to 18 years. The final sample, which included 140 disabled children from 5 to 18 years old was weighted using the person _wgt variable found in the GHS data (Statssa, 2020). This led to a weighted sample size of 198162 disabled children. Data weighting was done to increase the sample size and ensure the representativeness of the entire population. This study's analysis was based on a weighted sample of 198162 disabled children.

3.6 Data collection

This study used secondary data from the 2020 South Africa General Household Survey obtained from the Statistics South Africa website. Secondary data is described as already collected data that can be obtained from individual or government sources. In this case, the data was collected from government sources.

3.7 Variables

For the purposes of this study, the dependent variable is the enrollment of children with disabilities in schools, which is measured by whether a child with a disability was enrolled or not. It was coded as '0' to represent non-enrollment of disabled children and '1' to represent enrolment of disabled children. The Washington Group on Disability Statistics (WG) developed disability measures suitable for census and national surveys, with the objective of providing comparable international information on disability (Fotso & Odimegwu, 2019). This is adopted in the household survey. The disability status of children was either reported by their caretakers or by observation. The independent variables used in the statistical analysis are grouped into individual level to include gender, age group; household level includes family structure, household size, household vehicle ownership, household socio-economic status, mother's education, father's education, mother's employment status, father's employment status and community level which

includes racial group, place of residence and province. These are the only variables that can be extracted from the available data set. Effort to generate further community variables to be linked with the children with disability was not possible. In the multivariate analysis, some of the variables were removed due to collinearity.

3.8 Data analysis

There are three levels of analysis conducted using the Stata software Version 17.0. Stata is a statistical package that offers all methods of data analysis such as descriptive and multivariate analyses, and other specialized analyses. (Rabe-Hesketh & Everitt, 2007).

3.8.1. Univariate analysis

The first phase was a descriptive univariate analysis of the variables characteristics of the respondents using a series of frequencies and percentage distributions. These variables include school enrolment of the disabled children, gender, age, race, family structure, household size, household own vehicle, socio-economic status, father and mother employment status, place of residence, and province. The univariate analysis showed how the categories in each variable are distributed. It is simply a percentage distribution of enrolled children with disabilities by their background characteristics.

3.8.2. Bivariate analysis

The second phase, the bivariate analysis was done to present the profile of the sample of children with disabilities. It involved the cross-tabulation of the dependent variable with all the independent variables using Pearson's chi-square test. This was done to measure the association between each independent variable and the dependent variable. The p-value was used to determine whether the difference was statistically significant at a 95% level of confidence.

3.8.3. Multivariate analysis

The study used the binary logistic regression model to test the association between school enrolment and independent variables. The following specification was used to model the relationship between the dependent variable and the independent variables:

$$Enrol [1,0] = \alpha_1 + \beta_1 \sum independent\ variables + \varepsilon$$

Where the Enroll [1,0] is the probability of a child with disability being enrolled, “Independent variables” stand for the independent variables used in the model. (Rabe-Heskett & Everitt 2007). The choice of the independent variables was guided by literature as well as the availability of variables in the GHS survey. It is vital to note that most of the expected variables were not generated because of the limitation of the data source.

3.9 Ethics consideration

Bhandari (2021) explains ethical considerations as an accumulation of principles and values that guide research designs and practices, and these principles and values need to be observed while conducting an activity such as research in which people are involved. Ethical consideration ensures that the rights of participants in the research are respected. They also ensure that social justice is maintained, and that researchers do not indulge in mistreating participants. To protect the rights of participants and maintain social justice, the participants should be aware of the activities involved, their consent should be sought, and their decisions should be respected. “Ethical considerations promote respect and beneficence – promotion of human rights and social justice” (Mertens, 2009, p. 48). For this research, an ethics waiver clearance has been obtained from the Wits Ethics Clearance Committee, which is available in Appendix A.

3.10 Research methodological rigour

Methodological rigour in quantitative research (GHS, 2020) refers to the soundness or precision of a study in terms of planning, data collection, analysis, and reporting (Marquart, 2017). It is a way to establish the level of confidence in the findings. First, there was extensive planning for the design of the study. The sampling design used a scientific approach involving a sampling frame developed from the census enumeration areas in South Africa. Field workers were trained in the art of data collection, which involves the use of the computer-assisted telephone interview (CATI). To clear skip violations and inconsistencies in responses, editing and imputations were carried out. Editing was done to clear skip violations and ensure that each variable only contains valid values. The two imputation techniques used for inputting missing values are the hot deck and nearest neighbour techniques. In both cases, already published code was used for imputation. At the end of data collection, data entry was done, and the data weighted. Weighting is a technique in survey research used to adjust “survey data for sampling errors. So even if you don’t attain a representative

sample of a population of interest, you can still adjust the data by using this technique”. “What researchers do is apply a weighting factor to scale each respondent up and down as necessary. The sampling weights for the data collected from the households” (Statssa, 2020, p. 56) was done. At the level of this study, there was not much methodological rigour other than downloading the dataset from Stats SA nesstar, cleaning and recoding the selected variables for the eventual analysis and application of sample weights of the children with disability data set. (www.statssa.gov.za).

3.11 Conclusion

It is clear from the foregoing that this study is a cross-sectional secondary data analysis of a sample of the General Household Survey collected in 2020. The analytical plan is perfect as it covers the three levels of analysis, although some variables are not generated. The methodological rigour undertaken by Statistics South Africa enhanced the accuracy, reliability, and validity of the measurements and hence the findings. The researcher obtained ethics clearance from the Wits Ethics Clearance Committee for the research. Privacy and confidentiality are guaranteed, as the names of the respondents were not disclosed in either the data or the report.

CHAPTER FOUR: PRESENTATION OF FINDINGS

4.1 Introduction

This chapter presented the findings of univariate, bivariate, and multivariate and the levels and differentials of disabled children's school enrollment along with their interpretations. The findings were presented in line with the guided research questions, which are: what is the level of school enrolment of children with disabilities in the South African school system? What are the individual factors associated with disabled children's school enrolment? What are the household factors that affect school enrolment of disabled children? What are the community factors influencing enrolment of children with disabilities in school? Lastly, what are the factors that influence school enrolment of children with disabilities? The findings provided insight into the level of school enrolment of disabled children, and the individual, household and community factors that influenced their school enrolment. The findings were related to Bronfenbrenner ecological system theory.

4.2 Findings on level of school enrolment of disabled children

In this section, the univariate analysis findings revealed the percentage distribution of school enrolment of children with disabilities which was presented using descriptive statistics. A frequency table was employed to show the percentage distributions of the individual, household, and community characteristics of the children with disabilities. Figure 1 and Table 1 presented the percentage distribution of children with disabilities by their socioeconomic, household, and community characteristics of the study population. Figure 1 shows that 83% of children aged 5 – 18 with disabilities were reported to be enrolled in the South African School system, while 17% of them were not enrolled. This indicated that majority of children with disabilities in South Africa were enrolled in school.

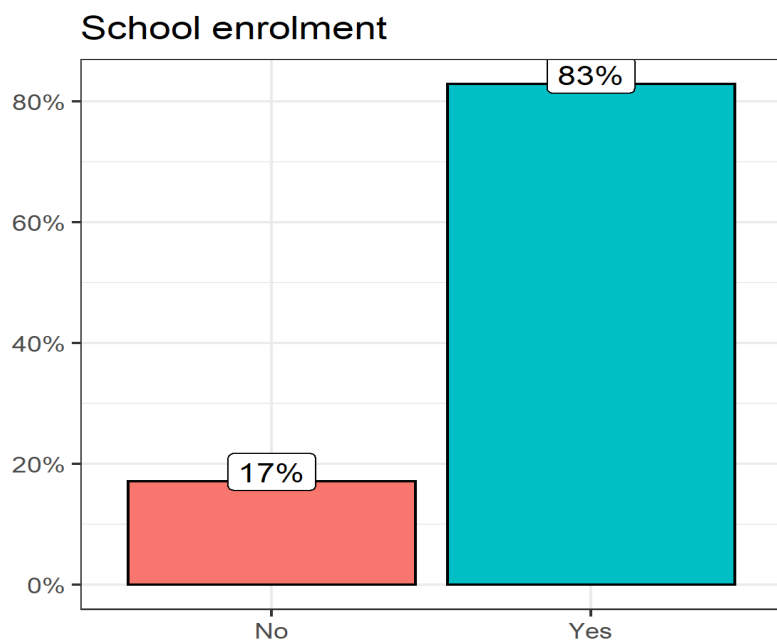


Figure 1: Levels of school enrolment among disabled children in south Africa

Table 1: Background characteristics of the weighted sample of children with disabilities in South Africa – GHS 2020

Characteristics	Disabled Children enrolled in school %	Disabled Children not enrolled in school %
	155 264	42 898
Sex		
Male	54.12	47.80
Female	45.88	52.20
Race		
African/Black	91.88	63.99
Coloured	5.66	12.70
Indian/whites	2.46	23.32
Age Group		
05-09	68.27	82.62
10-14	22.35	6.67
15-18	9.38	10.71
Family structure		
Lives with parents	42.58	18.32
Lives with grandparents	57.42	81.68
Household size		
Less than six	28.18	15.93
More than six	71.82	84.07
Household ownership of motor vehicle		
No	73.13	80.99

Yes	26.87	19.01
Socio-economic status		
Low	48.73	30.12
High	51.27	69.88
Mother's education		
Secondary	97.56	90.61
Tertiary	2.44	9.39
Father's education		
Secondary	94.05	90.55
Tertiary	5.95	9.45
Mother's employment status		
No	83.76	93.31
Yes	16.24	6.69
Father's employment status		
No		
Yes	79.08	93.93
	20.92	6.07
Place of residence		
Urban	52.51	61.54
Rural	47.49	38.46
Province		
Western Cape	5.61	41.88
Eastern Cape	15.73	7.30
Northern Cape	5.11	8.99
Free State	1.07	1.96
KwaZulu Natal	14.56	18.21
Northwest	12.13	4.92
Gauteng	19.54	7.14
Mpumalanga	8.98	2.85
Limpopo	17.27	6.76

Table 1 shows that there are socioeconomic differences in the enrolment of children with disabilities. More disabled male children were reported to be enrolled (54.12%) than female children with disabilities (45.9%). The majority of the enrolled children with disabilities are Africans (91.88%) and about (68.27%) are aged 5-9 years. This reflects the demographic structure of South Africa, which shows that more than three-quarters of the population are black Africans. In terms of family or household characteristics, disabled children who were enrolled in schools are living with their grandparents (57.42%) and are coming from a household with more than six members (71.8%). Table 1 also shows that more of the disabled children who were enrolled in school are from households with no motor vehicle (73.13%). It was shown also that children with disabilities who were enrolled in school in South Africa come from households with high socioeconomic status (51.3%) while 48.7% are from low socioeconomic status households. The table further showed that the enrolment of disabled children in Schools in South Africa varies by mother's education (97.6%) for secondary educated mothers, fathers' education (94.1% vs

6.0%), mothers' and fathers' employment. It also varies by place of residence as more are enrolled in urban areas (52.5%) than in rural areas (47.5%). Provinces with the highest number of enrolled children with disabilities are Gauteng (19.6%), Limpopo (17.3%), Eastern Cape (15.7%), KZN (14.6%), and Northwest (12.1%). Provinces with the least percentage enrolled children are Free State (1.07%), Northern Cape (5.11%), Western Cape (5.6%) and Mpumalanga (8.89%).

4.3 Findings on individual factors associated with the school enrolment of disabled children

The purpose here was to identify the individual factors associated with disabled children's school enrolment. Table 2 shows the levels and differentials of school enrolment of children with disabilities by selected socioeconomic, household, and community variables. The analysis compared disabled children enrolled in school with those not enrolled. Consistently Table 2 highlighted the differences in enrolment by identified variables. However, the differences are only significant for sex/gender, household ownership of vehicles and father's employment.

Table 2: Percentage distribution of school enrolment of children with disabilities by background characteristics. (GHS 2020)

Characteristics	Disabled Children enrolled in school %	Disabled Children not enrolled in school %
	155 264	42 898
Sex		
Male	82.28	17.72
Female	83.61	16.39
p-value	0.0427 (0.836)	
Race		
African/Black	84.92	15.08
Coloured	63.64	36.36
Indian/whites	66.67	33.33
p-value	3.7924 (0.150)	
Age Group		
05-09	83.00	17.00
10-14	88.46	11.54
15-18	71.43	28.57
p-value	1.8637 (0.394)	
Family structure		
Lives with parents	86.54	13.46
Lives with grandparents	80.23	19.77
p-value	0.8969 (0.344)	
Household size		
Less than six	86.67	13.33
More than six	81.05	18.95
p-value	0.676 (0.410)	

Household own motor vehicle		
No	83.33	16.67
Yes	81.58	18.42
p-value	0.0600 (0.807)	
Socio-economic status		
Low	87.32	12.68
High	78.26	21.74
p-value	2.0236 (0.155)	
Mother's education		
Secondary	80.00	20.00
Tertiary	33.33	66.67
p-value	3.4673 (0.063)	
Father's education		
Secondary	83.64	16.36
Tertiary	50.00	50.00
p-value	2.7814 (0.095)	
Mother's employment status		
No	78.57	21.43
Yes	66.67	33.33
p-value	0.4212 (0.516)	
Father's employment status		
No	81.63	18.37
Yes	80.00	20.00
p-value	0.0146 (0.904)	
Place of residence		
Urban	80.00	20.00
Rural	85.00	15.00
p-value	0.6034 (0.437)	
Province		
Western Cape	50.00	50.00
Eastern Cape	86.96	13.04
Northern Cape	73.68	26.32
Free State	50.00	50.00
KwaZulu Natal	78.95	21.05
Northwest	88.89	11.11
Gauteng	90.48	9.52
Mpumalanga	90.00	10.00
Limpopo	89.66	10.34
p-value	11.5942 (0.170)	

Disabled children not enrolled in the school system are colored households (36.4%), Indian/Whites (33.3%), aged 15-18 (28.6%). Also, more of the disabled children are living with their grandparents (20%) and from households with large size (19%). Table 2 shows that the differences between the two groups of children with disabilities are not statistically significant. The findings indicated gender and age are the individual factors associated with disabled children's school enrolment.

4.4 Findings on household and community factors that affect school enrolment of children with disabilities

The bivariate logistic analysis findings explained here identified household and community factors that affect disabled children's school enrolment. The study also tested the association between each of the selected variables and the school enrolment of children with disabilities. A logistic regression of school enrolment of children with disabilities was run over each variable of interest separately. Findings are presented in Table 3. This Table shows the unadjusted odds ratios (UOR) and confidence intervals. Unadjusted odds ratios mean the comparison does not consider the influence of other factors. The logistic Tables present the odds ratios where '1' represents no effect of the independent variable, a ratio greater than '1' shows that the independent variable increases the odds of school enrollment for children with disabilities. According to the findings in Table 3, variables that were found to be significantly associated with an increased probability of a disabled child being enrolled in school were household ownership of a motor vehicle (1.57), household income status, mothers' employment status (2.71), place of residence (1.45), and province.

The findings further revealed that children with disabilities were more likely to be enrolled in school in other provinces relative to the Western Cape (the reference category). On the other hand, variables like gender, age, family structure, socioeconomic status, and mothers' education were found to be significantly associated with a decreased risk of disabled children being enrolled in school relative to the reference categories. For example, female disabled children have less likelihood of being enrolled in schools relative to the male ones, although that is a mere 22%. Similarly, disabled children from coloured and Indian/white racial groups are less likely to be enrolled in school. The factors found that significantly influence school enrolment of disabled children are household ownership of vehicle, household income status, mother's employment status as the household factors while community factors are place of residence and province.

Table 3: Results of bivariate logistic regression of enrolment of children with disabilities and selected variables (GHS 2020)

Independent variables	OR	CI
Sex		
Male	1.00	

Female	0.78***	0.76-0.79
Race		
African/Black	1.00	
Coloured	0.31***	0.30-0.32
Indian/whites	0.07***	0.07-0.08
Age Group		
05-09	1.00	
10-14	4.05***	3.89-4.22
15-18	1.06***	1.02-1.10
Family structure		
Lives with parents	1.00	
Lives with grandparents	0.30***	0.29-0.31
Household size		
Less than six	1.00	
More than six	0.48***	0.47-0.50
Household own motor vehicle		
No	1.00	
Yes	1.57***	1.52-1.61
Socio-economic status		
Low	1.00	
High	0.45***	0.44-0.46
Household income	1.00***	1.00-1.00
Mother's education		
Secondary	1.00	
Tertiary	0.24***	0.23-0.26
Father's education		
Secondary	1.00	
Tertiary	0.61***	0.58-0.64
Mother's employment status		
No	1.00	
Yes	2.71***	2.57-2.85
Place of residence		
Urban	1.00	
Rural	1.45***	1.42-1.48
Province		
Western Cape	1.00	
Eastern Cape	16.08***	15.37-16.83
Northern Cape	4.24***	4.05-4.44
Free State	4.09***	3.75-4.47
KwaZulu Natal	5.96***	5.76-6.19
Northwest	18.39***	17.47-19.37
Gauteng	20.44***	19.53-21.38
Mpumalanga	23.53***	22.08-25.09
Limpopo	19.07***	18.21-19.97

Notes: UOR stands for Unadjusted Odds Ratios, CI stands for Confidence intervals; ***

$p < 0.001$

4.5 Findings on Factors that influence school enrolment of children with disabilities

The multivariate analysis findings in this section presented the factors which are the individual, household and community factors that influence the school enrollment of children with disabilities when selected variables were adjusted. The focus of this study was to examine the factors that influence school enrolment of children with disabilities. This is referred to as the adjusted odds ratio which is the ratio of the odds of the presence of an antecedent in those with a positive outcome (enrolment of children with disabilities) to those with a negative outcome (not enrolled). This ratio is adjusted when the outcome is suspected to be affected by other factors.

Table 4 shows the results of the multivariate logistic regression model that was fitted for school enrolment for children with disabilities in south Africa. The model included only variables that were found to be statistically associated with school enrolment of children with disabilities. Thus, the variables selected were gender of disabled children, age group, family structure, household size, household ownership of vehicle, socioeconomic status, household income, mothers' education, employment, and place of residence. According to the results in Table 4, female disabled children are less likely to be enrolled in school relative to male disabled ones. Similarly, those aged 10-14 years and 15-18 are less likely to be enrolled in school relative to the reference group (age 5-9).

Table 4: Results of multivariate logistic regression of enrolment of children with disabilities and selected variables (GHS 2020)

Independent variables	OR	CI
Sex		
Male	1.00	
Female	0.19***	0.18-0.20
Age Group		
05-09	1.00	
10-14	0.72***	0.64-0.81
15-18	0.06***	0.05-0.06
Household Variables		
Family structure		
Lives with parents	1.00	
Lives with grandparents	0.02***	0.19-0.02
Household size		
Less than six members	1.00	
More than six members	1.50***	1.39-1.61
Household own motor vehicle		
No	1.00	
Yes	2.14***	

		2.00-2.30
Family Socio-economic status		
Low	1.00	
High	0.40***	0.38-0.42
Household income	1.00**	1.00-1.00
Mother's education		
Secondary	1.00	
Tertiary	0.11***	0.10-0.12
Mother's employment status		
No	1.00	
Yes	4.32***	4.01-4.66
Community variable		
Place of residence		
Urban	1.00	
Rural	2.33***	2.23-2.44

*Notes: AOR stands for Adjusted Odds Ratios, CI stands for Confidence intervals; *** $p < 0.001$ ** $p < 0.01$*

In terms of household variables, Table 4 shows that children with disabilities living with their grandparents are less likely to be enrolled in schools relative to those living with their parents. Household ownership of vehicle has 2.14 likelihood of increasing enrolment of disabled children. Children with disabilities whose mothers are employed are 4.32 times more likely to be enrolled in schools than those whose mothers are unemployed. It was shown that children with disabilities from large households (with more than six persons) are more likely to be enrolled in school than those with lesser family size (1.50). School enrolment of children with disabilities is more likely to occur in higher income households, with mother being employed and place of residence (rural areas are 2.33 times more likely to be enrolled in school). Though these are in the expected pattern of relationship, they are not statistically significant.

The findings show age and gender as the individual factors, household ownership of a vehicle, household income, household size, mother's employment status as the household factors and place of residence and province as the community factors. These are the critical factors from the findings that significantly influence disabled children's enrolment in school. The main purpose of this study was to examine and identify the factors influencing the school enrolment of children with disabilities in South Africa and the extent of their school enrolment. The study specifically explored the individual, household, and community factors that influence school enrolment of disabled children from the General Household Survey 2020 data. The study was based on the hypothetical assumption that school enrolment of children with disabilities is or can be influenced on multiple scales, including individual, household, and community. The study findings revealed

that gender, age, household ownership of vehicle, household income status, household size, the mother's employment status, place of residence and province are the unadjusted and critical factors that influence the school enrolment of disabled children in South Africa.

These household and community factors are within the immediate and extended environments, which are the family/household, and the community in which the children live. These household/family, and community factors are in the ecological systems of the Bronfenbrenner's theory. The community factors, which are province and place of residence are in the macrosystem while the household factors such as household ownership of a vehicle, household income status, household size and mother's employment status are in the microsystem, mesosystem, and exosystem. This implies that disabled children's school enrolment is influenced by the circumstances within the family and community. For example, disabled children whose parents are employed are more likely to be enrolled in school than those whose parents are unemployed. It is noted from this study's findings that Bronfenbrenner ecological systems have huge influence on the life and well-being of a child especially those with disabilities as what happens in the household and community influence disabled children's enrolment in school more. The findings are a confirmation of the Bronfenbrenner ecological theory that an understanding of the dynamic interrelationships can be found among the various personal and environmental factors/from the perspectives of the structures of relationships that make up a child's environment (Bronfenbrenner, 1979).

4.6 Conclusion

In this chapter, the analysis has highlighted the unadjusted, and critical factors that can influence the school enrolment of children with disabilities in South Africa. From the bivariate and multivariate analysis findings, these factors, gender, age, household ownership of motor vehicle, household income, Household size, Mother's employment status, place of residence and province were found to influence the school enrolment of children with disabilities in South Africa. These factors are more of household and community factors than individual factors. The non-statistical significance of some of the relationships may be artefacts of data quality.

CHAPTER FIVE: DISCUSSION OF FINDINGS AND CONCLUSION

5.1 Introduction

This chapter discussed the study findings in relation to the study objectives and questions and related them to the literature. It also highlighted the recommendations, conclusions, and study limitations.

5.2 Discussion of findings

The main objective of this study was to explore and identify the extent of the disabled children's school enrolment as well as the factors influencing disabled children's school enrolment in South Africa. The General Household Survey data of 2020 was used to examine the individual, household, and community factors that affect the school enrolment of children with disabilities in South Africa.

5.2.1. Level of school enrolment of children with disabilities in South African school system

The first objective was to determine the extent of school enrolment for children with disabilities. Contrary to literature, which indicates that children with disabilities are more likely to be absent from school than their peers without disabilities (UNESCO, 2018), and that 70% of disabled children of school-going age remained absent in South Africa (Donohue & Bornman, 2014), this study confirmed a high level (83%) of school enrolment of children with disabilities aged 5-18 years in South African school system, which shows that many disabled children in South Africa were enrolled in school. This can be interpreted to mean that the various policies and programs of the South African government to make education accessible to all, such as converting some mainstream schools into full-service schools, strengthening special schools to become resource centers, and giving grants among others, in the country to promote the education of all children with and without disabilities, are working and effective. Thus, the democratisation of access to education in South Africa since 1994 through policies and programs and commitments to international conventions seems to be yielding good results. Certainly, South Africa will achieve the goal of providing inclusive education for all by 2030.

In pursuit of increasing the level of access to education and achieving the goal of providing inclusive education for all by 2030, the government provided learners from poor families free education through fee exemption and the no fee policy (National Development Plan {NDP} 2030)

and financial aid for tertiary education students who could not afford to pay for their studies. The Government, through the Funza Lushaka Bursary Program invests in the training of teachers to improve capacity development in the teaching force and ensure that teachers acquire quality knowledge and skills and are equipped to teach, support, and create a conducive learning environment for all learners including those with disabilities. The emphasis is also on improving the quality of early childhood education (ECD) facilities and infrastructure in schools. The focus is on building more schools and ECD centres and providing resources, educational materials and qualified teachers (van der Berg, Taylor, Gustafsson, Spaul, & Armstrong, 2011; NDP, 2030). The feeding scheme program that is being run in schools, campaigns to get out of school children to enroll in school, and the Kha Ri Gude Mass Literacy campaign to cater for adult literacy learners run by the Department of Basic Education are part of the strategies put in place to increase the level of access to inclusive education for all by 2030.

Individual, household, and community factors influencing the enrollment of children with disabilities in school were investigated for the second research objective. Five critical factors at the household and community levels were identified, indicating that household and community variables are the main predictors of school enrolment for disabled children.

5.2.2. Individual factors associated with disabled children's school enrolment

Though household and community variables are the main predictors of disabled children's enrolment in school, gender and age were found as individual factors that influence their school enrolment. It was found that more male disabled children were enrolled in school relative to female disabled children. The implication then is that disabled female children are less likely to be enrolled in school indicating that gender influences disabled children's school enrolment. Gender discrimination, as one of the factors that influence school enrolment, played a role in this case. Female children, mostly the disabled ones, fall victim to gender discrimination. The historical belief especially in Africa that a male child is superior to and has more value than a female child deepens the gender discrimination. A male child is viewed as an heir to carry on the family name and lineage and provide for the extended family after his parents' passing. This belief exposes disabled female children to various forms of discrimination.

On the other hand, the bias surrounding female children's value and ability, especially the disabled ones, continues to sustain the view that educating them is pointless. Female children, including those with disabilities, are not regarded as an educational investment because they marry into another family (the husband family) (Limaye, 2016). Some families choose to benefit from the dowry (money paid by a man to his wife's family for marrying the daughter) as it will be of great assistance, especially if the family is poor (Donohue & Bornman, 2014). So, instead of sending them to school, they are trained to be homemakers who care for other family members.

In terms of age, this study showed that children with disabilities aged 10-14 years and 15-18 years are less likely to be enrolled in school relative to those aged 5-9 years. According to the 2018 General Household Survey report, disability is the key reason children from ages 7-15 are not attending school. Being disabled carries stigma in society, which often results in the children being excluded from society and school. In addition, some learners without disabilities stated that education is of no value to them as their reason for not going to school, which may be due to a lack of teaching on the importance of education or the attitudes of people towards education within the environment in which these children find themselves. It could also be because they see educated people unemployed after finishing their studies.

Children with disabilities within these age groups are sensitive to what is being said about them and how they are being treated. Studies show that in South Africa, some children with disabilities suffer physical violence and neglect in schools (Mckenzie et al., 2020) in which they may not receive the necessary attention from their teachers. It is also indicated in the literature that learners without disabilities often tease those with disabilities for their slow learning process (Duma et al., 2020). In such situations, some parents decide not to enroll their disabled children and the children can stop attending school due to the negative and discriminatory attitudes they receive (Mulenga, 2019; Limaye, 2016).

5.2.3. Household factors that affect school enrolment of disabled children

At the household level, household size, household ownership of a vehicle, the mother's employment status, and household income (socioeconomic status) were identified as influencing disabled children's enrolment in school. This study found that the larger the family size (6+), the more likely a child with disability would be enrolled in school, which is contrary to the thinking that a child with disability in a large family is less likely to be enrolled in school considering the

influence of gender discrimination. Also, parents would prefer to send those without disabilities to school who will be able to contribute to the family's needs with the income earned from work (Donohue & Bornman, 2014). A child from a large family is more likely to be enrolled in school, which could be possible due to government liberal policy of funding education at all levels, but it could also be due to the type of family such a disabled child comes from. A family that values education and has resources is likely to enroll a child with disabilities in school, irrespective of the family's size. Since 1994, the South African government has embarked on massive efforts such as conversion of ordinary schools into full-service schools, strengthening of special schools and their resource centers, funding of schools, improvement of teachers' qualifications to enable them to teach and support disabled learners in their care, implementation of curriculum differentiation and sign language, implementation of SIAS policy for early identification of learners' barriers to learning (disability) so as to address them early, and building of more special schools in rural areas (DBE, 2015) among others, to provide support to make education available to all South Africans irrespective of their status.

Household ownership of a vehicle is another household factor that influences school enrollment of disabled children. The study's findings indicated that households that own vehicles are more likely to enroll their children with disabilities in school once such households are relatively well off. This implies that transportation will not be an obstacle, as the parents are able to take the disabled child to school even if the school is far from their area. The literature is replete with studies that have reported that a lack of transportation systems is a contributing factor to the non-enrollment of children with disabilities in schools. When schools are far from where the children live, it affects the school enrollment of children with disabilities (Mulenga, 2019). For instance, children who have challenges walking will stay home from school, especially when their parents cannot afford to pay for transportation or a boarding school (Mulenga, 2019; Moyi, 2017), or they may end up being enrolled in a nearby school with no resources to meet their educational needs. It is true that household ownership of a vehicle influences the school enrollment of children with disabilities, but there is a possibility of disabled children from households that do not own a vehicle being enrolled in school. Parents of such children can arrange for the transportation of their children if they can afford it. Literature revealed that in Limpopo province, parents with disabled children had to buy a bus to take their children to school (Macupe, 2020).

Furthermore, household income is shown as another factor influencing the school enrollment of children with disabilities. The finding revealed that the higher the household income, the more likely it is that a child with a disability is enrolled in school. This finding agrees with research findings that children with and without disabilities from households of higher socioeconomic status have a greater likelihood of being enrolled in school (Moyi, 2017), and that a higher socioeconomic status of household allows parents to take their children with disabilities to schools that offer best education (Smit et al., 2007). Unlike children, especially those with disabilities from households of low socioeconomic status, whose parents cannot afford to enroll them in school even if they want to.

Finally, there is the mother's or parent's employment status to consider when it comes to household factors. Special needs schools require one to be financially stable to afford the costs of the schools (Mabuza & de Beer, 2017). So, the employment status of parents with disabled children is a vital determinant for the school enrollment of such children. According to the findings of this study, the mother's employment status influences the enrollment of disabled children in school. It was found that mothers who are employed are 4.32 times more likely to report enrolling their children with disabilities in school than those parents/mothers who are unemployed. Some mothers choose not to work so that they can be available for their disabled children especially those with severe disabilities (Mabuza & de Beer, 2017). On the other hand, some mothers are forced to quit their jobs to look after their children due to a lack of schools that can accommodate them (Beckmann & Reyneke, 2021; Macupe, 2020). Due to unemployment, most parents are unable to find well-resourced schools that offer best education for their disabled children.

5.2.4. Community factors influencing enrolment of children with disabilities in school

From the community's point of view, place of residence and province were found to be factors influencing children with disabilities' school enrolment. Place of residence plays a role in children with disabilities enrolment in school. Research findings show that children with disabilities' residing in rural areas are at a disadvantage when it comes to being enrolled in school due to a lack of special schools and limited resources (Macupe, 2020; Mabuza & de Beer 2017) and poor infrastructure such as road. It is indicated that a group of children from the rural area of Daggakraal in Mpumalanga were said not to be at school due to lack of schools in the area. The roads in most rural areas are so bad that parents who cannot afford the transport costs have to walk for several hours to get to the nearest school (John, 2014). Contrary to the findings, this study discovered that

disabled children living in rural areas had a higher chance of enrolling in school than those living in urban areas. The expectation is that children with disabilities in urban areas will have more opportunities to enroll in school due to the availability of resources and special needs schools than those in rural areas. The finding that children with disabilities in rural areas have more chances of being enrolled in school may be because of migration of people from rural areas to urban areas in search of better life. Though there may be a few special needs schools with limited resources in rural areas, the rural-to-urban migration could have created more admission spaces. While migration to urban areas increases the population in urban areas, this results in limited admission spaces in schools despite having more disability-friendly schools and resources.

Province is another community factor. It was found that more disabled children were more likely to be enrolled in other provinces relative Western Cape. This finding is surprising as it is expected that there would be high enrolment of children with disabilities in this province. The report on disability and education by Statistics South Africa in 2011 revealed that the most disadvantaged in terms of access to school were coloured children. The low school enrolment of children with disabilities may be due to limited access to resources, attitudes towards disability, lack of access to Early Childhood Development (ECD) and early intervention, limited spaces in schools (Stassa, 2011) and level of parents' unemployment in the province. Unequal allocation of resources towards disability inclusive education within provinces (Du Plessis, 2013) is likely to reduce the chances of disabled children enrolling in school in poor provinces. Some provinces are better equipped in terms of resources and disability-friendly schools. Provinces with more resources and special needs schools offer greater opportunity for disabled children to be enrolled in school. However, School Governing Body (SGB) having authority to care for schools can assist in the provision of resources and special needs schools through fund raising thereby giving disabled children the opportunity of enrolling in school.

5.3 Significance of the study

Education is important for all people, including those with disabilities. It enables people to live with dignity and improves the quality of life (UNESCO, 1990). Educating children with disabilities provides them with life skills that will assist them in becoming independent instead of relying on their families (Mulenga, 2019). According to the UN (2015), the goal of the Sustainable Development Group is to ensure education for all children, including those with disabilities, by

2030, but in South Africa, like other developing countries, disabled children are still struggling to gain access to education. According to a 2019 Human Rights Watch report, 11500 children with disabilities were on the waiting list to be enrolled in school, and in some instances, some of them ended up not getting enrolled in school. Therefore, this study set out to investigate the factors specifically the individual, household, and community factors that influence the school enrollment of children with disabilities.

The findings of this study will be useful to help education policymakers and other stakeholders provide the necessary services and intervention programmes that will enable the school enrollment of children with disabilities. Furthermore, the findings will assist in raising awareness of household and community factors that influence disabled children's access to education. Finally, the findings of this study will encourage further research in education on factors influencing disabled children's school enrolment and contribute to the already existing literatures on factors influencing disabled children school enrollment.

5.4 Limitations of the study

This study used secondary data from the General Household Survey 2020 and has some limitations. As a survey, it depended on self-reported data. In other words, it relied on the respondents to provide honest and accurate responses to the questions asked them, especially on disability, and on the fieldworkers' honest report. Hence, information that is not revealed by the respondents will not be reflected in the survey data. This could be the reason why some of the critical variables reviewed were not included. Classifying people experiencing various types of disabilities as disabled did not provide an understanding as to whether any type of disability affects the school enrollment of children with disabilities. For example, a child with severe walking or hearing conditions. The use of a multiple-choice questionnaire, in which respondents were given options to choose from, will not give the respondents the opportunity to express their situations in detail. As a result, in some cases, important information may not be retrieved from the respondents. The change in the survey method from "collecting GHS 2020 data from Computer Assisted Personal Interviews (CAPI) to Computer Assisted Telephone Interviews (CATI)" (Statssa, 2020, p. 3) and the fact that GHS 2020 estimates were not based on a full sample mean that comparison of GHS 2020 data with the previous years may not give the expected result. Due to the COVID-19 pandemic, the researcher of this study was unable to conduct additional interview to gather

more information from households with disabled children on the factors influencing their children's school enrolment.

5.5 Recommendations

While it is noted that there is a high level of enrollment of children with disabilities in schools, all national policy stakeholders and development partners should continue promoting the ideals of school enrolment for disabled children. Facilities and resources should continue to be provided so that the mantra of education for all can be achieved by 2030. The South African government should continue to invest in the education sector, especially in terms of quality, availability, and accessibility. This is important because it motivates people to utilise educational services. There is a need to improve the economic sub-structure to provide employment to all women, or mothers, who bear the brunt of children with disabilities. If all women are employed, then there will be a 100% increase in the school enrolment of children with disabilities, as this study indicated that employed mothers are more likely to enroll their children with disabilities in school. Further research using qualitative tools and/or mixed method approaches is required to investigate the role of other community factors in the school enrolment of children with disabilities. To obtain firsthand information from households with disabled children, researchers should interact with them.

5.6 Conclusion

The main objective of this study was to examine the factors that influence the school enrolment of disabled children in South Africa. The findings from the analysis showed the individual, household, and community factors that influence school enrolment of children with disabilities. Household characteristics at the household and community levels were found to be critical factors influencing disabled children's school enrolment. The findings support the use of Bronfenbrenner Ecological Model as the appropriate theoretical model for the study.

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APPENDIX 1: ETHICS CLEARANCE

WITS SCHOOL OF EDUCATION



SCHOOL OF EDUCATION ETHICS COMMITTEE

CONSTITUTED UNDER THE UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)

CLEARANCE CERTIFICATE

PROTOCOL NUMBER: 2021ECE091M

PROJECT TITLE

Factors that influence the school enrolment of children with disabilities in South Africa

INVESTIGATOR

APPOLONIA NWAJI ODIMEGWU

SCHOOL/DEPARTMENT OF INVESTIGATOR

WITS SCHOOL OF EDUCATION

DATE CONSIDERED

13th September 2021

DECISION OF THE COMMITTEE

Approved unconditionally

EXPIRY DATE

Date of submission of the project report

ISSUE DATE OF CERTIFICATE 20th September 2021

CHAIRPERSON


(Dr Paul Goldschagg)

cc: Supervisor: Dr Tanya Bekker

DECLARATION OF INVESTIGATOR

To be completed in duplicate and **ONE COPY** emailed to the Ethics Office: Matsie.Mabeta@wits.ac.za.

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.

Signature

Date

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

APPENDIX 2:
DO-FILE OF STATISTICAL ANALYSIS

Disability dofile

//Merging household and individual data

//Individual data was treated as the master data

///Dropping variables

drop if age_grp1==1

///Creating adult data

drop if age <18

///Creating child data

drop if age >18

//Data weighting

gen iweight=person_wgt

merge m:1 uqnr using "C:\Users\Appolonia Odimegwu\Desktop\Disability SA\ghs-2020-hhold-v1.dta"

merge m:1 uqnr using "C:\Users\ Appolonia Odimegwu \Desktop\New Disab\zaf-statssa-ghs-2019-household-v1.dta"

"C:\Users\ Appolonia Odimegwu \Desktop\New Disab\zaf-statssa-ghs-2019-household-v1.dta"

///recode marital status

ta hhc_marital,nol

recode hhc_marital (1=1 "Married") (2=2 "Living with partner")(3/4=3

"Divorced/Seperated")(5=4 "Widowed") (6/7=5 "Single"),gen(Marital_Status)

label values Marital_Status Marital_Status

label variable Marital_Status "Current marital status"

ta Marital_Status

///Highest level of education

ta education,nol

recode education (99=.) (28/98=0 "No education")(0/7=1 "Primary")(8/12=2 "Secondary")

(13/27=3 "Tertiary"),gen(Highest_EducationLevel)

label values Highest_EducationLevel Highest_EducationLevel

label variable Highest_EducationLevel "Highest Level of Education"

ta Highest_EducationLevel

rename Highest_EducationLevel Mothers_education

```

///Currently attending educational institution// DEPENDENT VARIABLE
recode edu_attend (3=.) (8/9=.) (1=1 "Yes") (2=0 "No"), gen(Attending_EducationalInstitution)
label values Attending_EducationalInstitution Attending_EducationalInstitution
label variable Attending_EducationalInstitution "Currently attending educational institution"
ta Attending_EducationalInstitution

```

```

///Difficulty in SEEING
ta Difficultyin_Selfcare

```

```

///Difficulty in Communication
ta dsb_com, nol
recode dsb_com (5=.) (9=.) (1=0 "No Difficulty") (2/4=1
"Difficulty"), gen(Difficultyin_Communication)
label values Difficultyin_Communication Difficultyin_Communication
label variable Difficultyin_Communication "Difficulty in Communication"
ta Difficultyin_Communication

```

```

///DISABILITY STATUS
generate Disability_status=.
replace Disability_status=0 if Difficultyin_Seeing==0
replace Disability_status=0 if Difficultyin_Hearing==0
replace Disability_status=0 if Difficultyin_Walking==0
replace Disability_status=0 if Difficultyin_Remembering==0
replace Disability_status=0 if Difficultyin_Selfcare==0
replace Disability_status=0 if Difficultyin_Communication==0

```

```

replace Disability_status=1 if Difficultyin_Seeing==1
replace Disability_status=1 if Difficultyin_Hearing==1
replace Disability_status=1 if Difficultyin_Walking==1
replace Disability_status=1 if Difficultyin_Remembering==1
replace Disability_status=1 if Difficultyin_Selfcare==1
replace Disability_status=1 if Difficultyin_Communication==1

```

```

///Labelling of variable (Disability_status)
label define Disability_status 0 "No" 1 "Yes"
label values Disability_status Disability_status
label variable Disability_status "Disability status"
ta Disability_status

```

```

//Remaining with disabled children
drop if Disability_status==0

```

```

///Employment Status

```

```

ta lab_wge,nol
recode lab_wge (8/9=.) (1=1 "Yes")(2=0 "No"),gen(Employment_Status)
label values Employment_Status Employment_Status
label variable Employment_Status "Working for a wage,commission or salary"
ta Employment_Status

```

```

//Father alive
recode hhc_fath_alive (3=.) (1=1 "Yes")(2=0 "No"),gen(Father_Alive)
label values Father_Alive Father_Alive
label variable Father_Alive "Father is alive"
ta Father_Alive

```

```

//Mother alive
recode hhc_moth_alive (3=.) (1=1 "Yes")(2=0 "No"),gen(Mother_Alive)
label values Mother_Alive Mother_Alive
label variable Mother_Alive "Mother is alive"
ta Mother_Alive

```

```

//Relationship to head of household
recode hhc_relationship (1/2=0 "Other") (3=1 "Son or daughter")(4/6=0 "Other")(7=2
"Grandchild")(8/9=0 "Other"),gen(Relationship_householdhead)
label values Relationship_householdhead Relationship_householdhead
label variable Relationship_householdhead "Relationship to household head"
ta Relationship_householdhead

```

```

///Renaming of variables
rename Population race

```

```

//converting string variable to a numeric
destring geotype, generate(placeof_residence)

```

```
//Household ownership of motor vehicle
recode hwl_vehicle (1=1 "Yes")(2=0 "No"),gen(Housown_motorvehicle)
label values Housown_motorvehicle Housown_motorvehicle
label variable Housown_motorvehicle "Household ownership of motor vehicle"
ta Housown_motorvehicle
```

```
//Place of residence
recode placeof_residence (1=1 "Urban")(2/3=2 "Rural"),gen(Placeof_residence)
label values Placeof_residence Placeof_residence
label variable Placeof_residence "Place of residence"
ta Placeof_residence
```

```
///Socio-economic status
//Type of dwelling
ta hsg_maind,nolab
recode hsg_maind (12=.),gen(dwelling_type)
label values dwelling_type dwelling_type
label variable dwelling_type "Type of dwelling"
ta dwelling_type
```

```
//household's main water source
ta wat_drinkwat,nol
recode wat_drinkwat (14=.),gen(water_source)
label values water_source water_source
label variable water_source "Household's main water source"
ta water_source
```

```
//type of toilet facility available to household
ta san_toil,nol
recode san_toil(-5/-3=.),gen(toilet_facility)
label values toilet_facility toilet_facility
label variable toilet_facility "type of toilet facility available to household"
```

ta toilet_facility

//household's main source of energy/fuel for cooking

ta eng_mainelect,nol

recode eng_mainelect (99=.),gen(sourceof_energycooking)

label values sourceof_energycooking sourceof_energycooking

label variable sourceof_energycooking "household's main source of energy or fuel for cooking"

ta sourceof_energycooking

//refuse/rubbish is removed weekly by local authorities

ta swr_rub,nol

recode swr_rub (99=.),gen(refuse_removal)

label values refuse_removal refuse_removal

label variable refuse_removal "refuse/rubbish is removed weekly by local authorities"

ta refuse_removal

//own television

ta hwl_assets_tv,nol

recode hwl_assets_tv (9=.),gen(own_television)

label values own_television own_television

label variable own_television "Does the household own a TV"

ta own_television

//own telephone

ta com_phone,nol

recode com_phone (9=.),gen(own_telephone)

label values own_telephone own_telephone

label variable own_telephone "Does the household own a Telephone"

ta own_telephone

//own cell phone

ta com_cell,nol

recode com_cell (9=.),gen(own_cellphone)

```

label values own_cellphone own_cellphone
label variable own_cellphone "Does the household own a cellphone"
ta own_cellphone

//own refrigerator
ta com_cell,nol
recode com_cell (9=.),gen(own_refrigerator)
label values own_refrigerator own_refrigerator
label variable own_refrigerator "Does the household own at a refrigerator"
ta own_refrigerator

//own computer
ta hwl_assets_comp,nol
recode hwl_assets_comp (9=.),gen(own_computer)
label values own_computer own_commputer
label variable own_computer "Does the household own a computer"
ta own_computer

///SOCIO ECONOMIC STATUS INDEX

//Multiple correspondence analysis for Socio-economic index
mca dwelling_type water_source toilet_facility sourceof_energycooking refuse_removal
own_televison own_refrigerator own_computer own_telephone own_cellphone

predict ses
sum ses
xtile ses_cat=ses,nq(2)

//converting to terciles
xtile ses_2=ses,nq(2)

```

```

///Labelling of variable (Disability_status)
label define ses_2 1 "Low" 2 "High"
label values ses_2 ses_2
label variable ses_2 "Socio economic status"
ta ses_2

```

```

///Family structure
recode hhc_relationship (3=1 "Lives with parents")(7=2 "Lives with
grandparents")(8=.),gen(Family_Structure)
label values Family_Structure Family_Structure
label variable Family_Structure "Family Structure"
ta Family_Structure

```

```

//Household size
ta hholdsiz
recode hholdsiz (3/5=1 "No")(2=1 "3-5 members")(6/10=2 "6-10 members")(11/20=3 "More than
10"),gen(Household_size)
label values Household_size Household_size
label variable Household_size "Number of persons in a household"
ta Household_size

```

```

//School enrolment
recode Attending_EducationalInstitutin (1=0 "No")(2=1 "Yes"),gen(Attending_EducationInst)
label values Attending_EducationInst Attending_EducationInst
label variable Attending_EducationInst "Attending school"
ta Attending_EducationInst

```

```

//Mother's marital status
ta Mother_marital_status,nol
recode Mother_marital_status (1/2=1 "Married/living with partner")(3/5=0 "Not
married"),gen(Mother_Maritalstatus)
label values Mother_Maritalstatus Mother_Maritalstatus

```

```
label variable Mother_Maritalstatus "Mother's marital status"  
ta Mother_Maritalstatus
```

```
//Father's Marital status  
ta Father_marital_status,nol  
recode Father_marital_status (1/2=1 "Married/living with partner")(3/5=0 "Not  
married"),gen(Father_Maritalstatus)  
label values Father_Maritalstatus Father_Maritalstatus  
label variable Father_Maritalstatus "Father's marital status"  
ta Father_Maritalstatus
```

```
//Race  
ta race,nol  
recode race (1=1 "African/Black")(2=2 "Coloured")(3/4= 3 "Indian/whites"),gen(Race)  
label values Race Race  
label variable Race "Population group"  
ta Race
```

```
//Mother's education  
ta Mother_education,nol  
recode Mother_education (1/2=0 "No education/primary")(3=1 "Secondary")(4=2  
"Tertiary"),gen(Mothers_Education)  
label values Mothers_Education Mothers_Education  
label variable Mothers_Education "Mother's Level of Education"  
ta Mothers_Education
```

```
//Father's education  
ta Father_education  
recode Father_education (1/2=0 "No education/primary")(3=1 "Secondary")(4=2  
"Tertiary"),gen(Fathers_Education)  
label values Fathers_Education Fathers_Education
```

```
label variable Fathers_Education "Father's Level of Education"
ta Fathers_Education
```

```
//Father's education
recode Attending_EducationalInstitutin (1/2=0 "No education/primary")(3=1 "Secondary")(4=2
"Tertiary"),gen(Fathers_Education)
label values Fathers_Education Fathers_Education
label variable Fathers_Education "Father's Level of Education"
ta Fathers_Education
```

```
Attending_EducationalInstitutin
//Univariate
```

```
//Bivariate
tab Relationship_householdhead edu_attend,column chi2
tab ses_cat edu_attend,column chi2
tab sex edu_attend,column chi2
tab race edu_attend,column chi2
tab age_grp1 edu_attend,column chi2
tab prov edu_attend,column chi2
tab soc_grant_car edu_attend,column chi2
tab Father_Alive edu_attend,column chi2
tab Mother_Alive edu_attend,column chi2
```

```
//practice
ta Attending_EducationalInstitution if Sex==1
ta Attending_EducationalInstitution if Sex==1 & age_grp1==2
```

```
///Univariate
bysort Disability_status: tab Sex[iweight=person_wgt]
bysort Disability_status: tab race[iweight=person_wgt]
bysort Disability_status: tab age_grp1[iweight=person_wgt]
```

```
bysort Disability_status: tab Placeof_residence[iweight=person_wgt]
bysort Disability_status: tab Mother_education[iweight=person_wgt]
```

```
///Bivariate
```

```
bysort Disability_status: tab Sex Attending_EducationalInstitutin,row chi2
bysort Disability_status: tab race Attending_EducationalInstitutin,row chi2
bysort Disability_status: tab age_grp1 Attending_EducationalInstitutin,row chi2
bysort Disability_status: tab Mother_education Attending_EducationalInstitutin,row chi2
bysort Disability_status: tab Mother_marital_status Attending_EducationalInstitutin,row chi2
bysort Disability_status: tab Father_education Attending_EducationalInstitutin,row chi2
bysort Disability_status: tab Father_marital_status Attending_EducationalInstitutin,row chi2
bysort Disability_status: tab Mother_Alive Attending_EducationalInstitutin,row chi2
bysort Disability_status: tab Father_Alive Attending_EducationalInstitutin,row chi2
bysort Disability_status: tab Placeof_residence Attending_EducationalInstitutin,row chi2
```

```
///unadjusted
```

```
bysort Disability_status: logistic Attending_EducationInst i.Sex [iweight=person_wgt]
bysort Disability_status: logistic Attending_EducationInst i.race [iweight=person_wgt]
bysort Disability_status: logistic Attending_EducationInst i.age_grp1 [iweight=person_wgt]
bysort Disability_status: logistic Attending_EducationInst i.Mother_education
[iweight=person_wgt]
bysort Disability_status: logistic Attending_EducationInst i.Mother_marital_status
[iweight=person_wgt]
bysort Disability_status: logistic Attending_EducationInst i.ses_cat [iweight=person_wgt]
bysort Disability_status: logistic Attending_EducationInst i.Father_education
[iweight=person_wgt]
bysort Disability_status: logistic Attending_EducationInst i.Mother_Alive [iweight=person_wgt]
bysort Disability_status: logistic Attending_EducationInst i.Father_Alive [iweight=person_wgt]
bysort Disability_status: logistic Attending_EducationInst i.Placeof_residence
[iweight=person_wgt]
bysort Disability_status: logistic Attending_EducationInst i. prov [iweight=person_wgt]
```

```
//All
```

```
logistic Attending_EducationInst i. Disability_status i.Sex i.age_grp1 i.race i.ses_3  
i.Mother_education i.Placeof_residence i.prov i.Mother_marital_status i.Mother_Alive  
i.Father_Alive i.Father_education [iweight=person_wgt]
```

```
//Testing for multicollinearity
```

```
regress School_enrolment i.Sex i.Race i.age_grp1 i.Family_Structure i.Household_size  
i.Housown_motorvehicle i.ses_2 i.Mother_education i.Father_education i.Mother_employment  
i.Father_employment i.Placeof_residence i.prov
```

```
vif
```

```
///New Analysis
```

```
//Univariate
```

```
bysort Attending_EducationalInstitutin: tab Sex[iweight=person_wgt]  
bysort Attending_EducationalInstitutin: tab Race[iweight=person_wgt]  
bysort Attending_EducationalInstitutin: tab age_grp1[iweight=person_wgt]  
bysort Attending_EducationalInstitutin: tab Family_Structure[iweight=person_wgt]  
bysort Attending_EducationalInstitutin: tab Household_size[iweight=person_wgt]  
bysort Attending_EducationalInstitutin: tab Housown_motorvehicle[iweight=person_wgt]  
bysort Attending_EducationalInstitutin: tab ses_2[iweight=person_wgt]  
bysort Attending_EducationalInstitutin: tab Mother_Alive[iweight=person_wgt]  
bysort Attending_EducationalInstitutin: tab Father_Alive[iweight=person_wgt]  
bysort Attending_EducationalInstitutin: tab Mother_education[iweight=person_wgt]  
bysort Attending_EducationalInstitutin: tab Father_education[iweight=person_wgt]  
bysort Attending_EducationalInstitutin: tab Father_employment [iweight=person_wgt]  
bysort Attending_EducationalInstitutin: tab Mother_employment [iweight=person_wgt]  
bysort Attending_EducationalInstitutin: tab Placeof_residence[iweight=person_wgt]  
bysort Attending_EducationalInstitutin: tab prov[iweight=person_wgt]
```

```
//Bivariate
```

```

tab Sex Attending_EducationalInstitutin,row chi2
tab Race Attending_EducationalInstitutin,row chi2
tab age_grp1 Attending_EducationalInstitutin,row chi2
tab Family_Structure Attending_EducationalInstitutin,row chi2
tab Household_size Attending_EducationalInstitutin,row chi2
tab Housown_motorvehicle Attending_EducationalInstitutin,row chi2
tab ses_2 Attending_EducationalInstitutin,row chi2
tab Mother_education Attending_EducationalInstitutin,row chi2
tab Father_education Attending_EducationalInstitutin,row chi2
tab Mother_employment Attending_EducationalInstitutin,row chi2
tab Father_employment Attending_EducationalInstitutin,row chi2
tab Placeof_residence Attending_EducationalInstitutin,row chi2
tab prov Attending_EducationalInstitutin,row chi2

//recoding school enrolment
recode Attending_EducationalInstitutin (1=0 "No")(2=1 "Yes"),gen(School_enrolment)
label values School_enrolment School_enrolment
label variable School_enrolment "Attending school"
ta School_enrolment

//bivariate unadjusted
logistic School_enrolment i.Sex [iweight=person_wgt]
logistic School_enrolment i.Race [iweight=person_wgt]
logistic School_enrolment i.age_grp1 [iweight=person_wgt]
logistic School_enrolment i.Family_Structure [iweight=person_wgt]
logistic School_enrolment i.Household_size [iweight=person_wgt]
logistic School_enrolment i.Housown_motorvehicle [iweight=person_wgt]
logistic School_enrolment i.ses_2 [iweight=person_wgt]
logistic School_enrolment i.Mother_education [iweight=person_wgt]
logistic School_enrolment i.Father_education [iweight=person_wgt]
logistic School_enrolment i.Mother_employment [iweight=person_wgt]
logistic School_enrolment i.Father_employment [iweight=person_wgt]
logistic School_enrolment i.Placeof_residence [iweight=person_wgt]
logistic School_enrolment i.prov [iweight=person_wgt]

```

```
//Multivariate
logistic School_enrolment i.Sex i.Race i.age_grp1 i.Family_Structure i.Household_Sizee
i.Housown_motorvehicle i.ses_2 i.Mother_education i.Mother_employment i.Placeof_residence
i.prov [iweight=person_wgt]
```

```
//Household size
ta hholdsz
recode hholdsz (3/5=1 "No")(2=1 "3-5 members")(6/10=2 "6-10 members")(11/20=3 "More than
10"),gen(Household_size)
label values Household_size Household_size
label variable Household_size "Number of persons in a household"
ta Household_size
```

```
//Household size
ta hholdsz
recode Household_size (1=1 "Less than 6")(2/3=2 "six and more"),gen(Household_Sizee)
label values Household_Sizee Household_Sizee
label variable Household_Sizee "Number of persons in a household"
ta Household_Sizee
```

