

UNIVERSITY OF GHANA

COLLEGE OF HUMANITIES

DEPARTMENT OF PSYCHOLOGY



**EXPLORING THE PERCEPTIONS OF PARENTS AND SPECIAL EDUCATION
TEACHERS OF APPLIED BEHAVIOURAL ANALYSIS AS AN EDUCATIONAL
INTERVENTION FOR CHILDREN WITH AUTISM SPECTRUM DISORDERS**

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**THIS DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF GHANA IN
PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF
MPHIL PSYCHOLOGY DEGREE**

NOVEMBER 2024

DECLARATION

I, **JOANA ANNOIWA QUARCOO**, hereby declare this dissertation which is being submitted in to fulfil the requirements for the Master of Philosophy degree in Psychology, this the product of my own research conducted under supervision, this work has not been previously accepted for any degree nor is it being submitted concurrently for any degree, with the exception of situations where other sources are duly acknowledged and properly referenced.

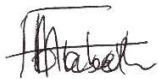
I therefore grant the Department of Psychology permission to publish the dissertation in any suitable manner. In such cases, the research supervisors and I will share authorship as subsequent authors, with me being the lead author.



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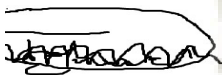
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DEDICATION

This work is dedicated to God, for giving me the strength to complete successfully. The dedication is also extended to my partner, my parents, my supervisors, special educators from Autism Compassion Africa and Therakidz and parents who participated in this study.



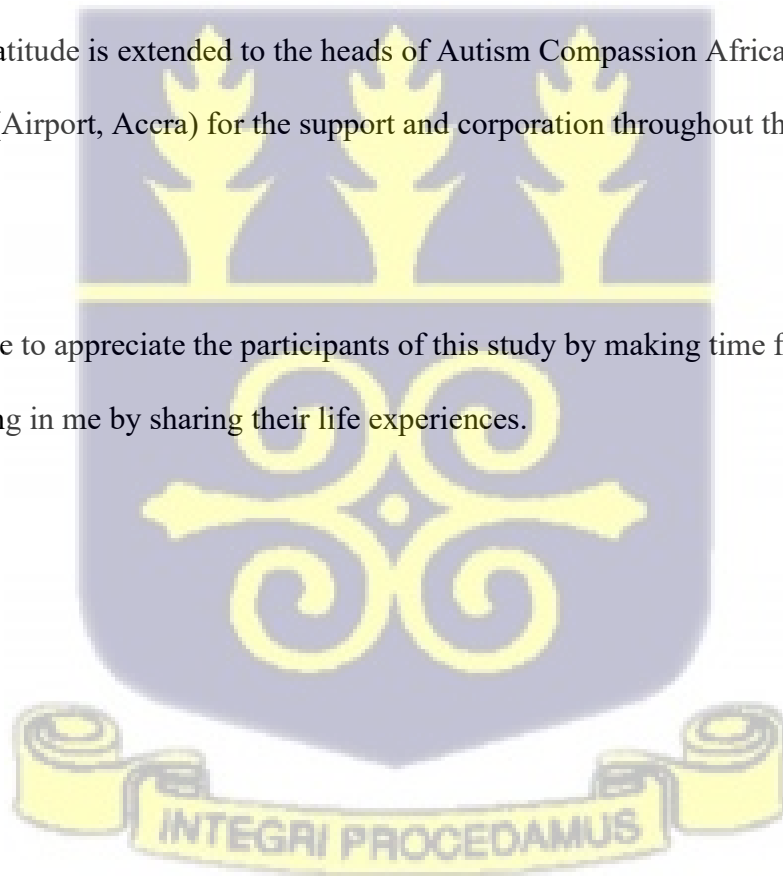
ACKNOWLEDGEMENT

I would want to extend my sincere gratitude to the Almighty God for successfully seeing me complete this programme successfully. This has been a very tough journey, but God has been faithful. I am most grateful to my supervisors, Prof. Mabel Oti-Boadi and Dr Enoch Dotse, for patience, guidance, corrections and suggestions during the duration of this study.

I also want to thank my amazing partner, my parents and my siblings for their immense support, words of encouragement and prayers throughout this programme. This has been a very turbulent journey, but you have been there every step of the way.

My heartfelt gratitude is extended to the heads of Autism Compassion Africa (Cape Coast) and Therakidz (Airport, Accra) for the support and corporation throughout the data collection.

I would also like to appreciate the participants of this study by making time for interviews and for confiding in me by sharing their life experiences.



ABSTRACT

This study explored the perceptions of special education teachers and parents regarding the use of ABA as an educational intervention for children with ASD in Ghana. Using an interpretative phenomenological approach, 14 participants made up of five parents and nine special education teachers were purposively selected for this study. Semi-structured interviews were used to collect data on participants' perceptions on the use of ABA as educational intervention for children with ASD. Data collected was analysed and interpreted, six main themes and their sub-themes emerged that included the participants' perceptions of ABA, knowledge about ABA, barriers encountered while using ABA, misconceptions about ABA, the benefits of ABA and teacher's experiences with ABA. Findings from this study show that special education teachers and parents perceive ABA as educational intervention that helps children with ASD to be independent, also ABA is perceived as an approach in modifying behaviour. Additionally, the study also highlights the need to train more people to be appropriately equipped with ABA techniques and strategies to roll out lessons for children with ASD. This study provided important information that will help in promoting ABA as an educational intervention for children with ASD in Ghana, while also providing information for adjusting policies to adequately accommodate educational needs for children with ASD and future research.

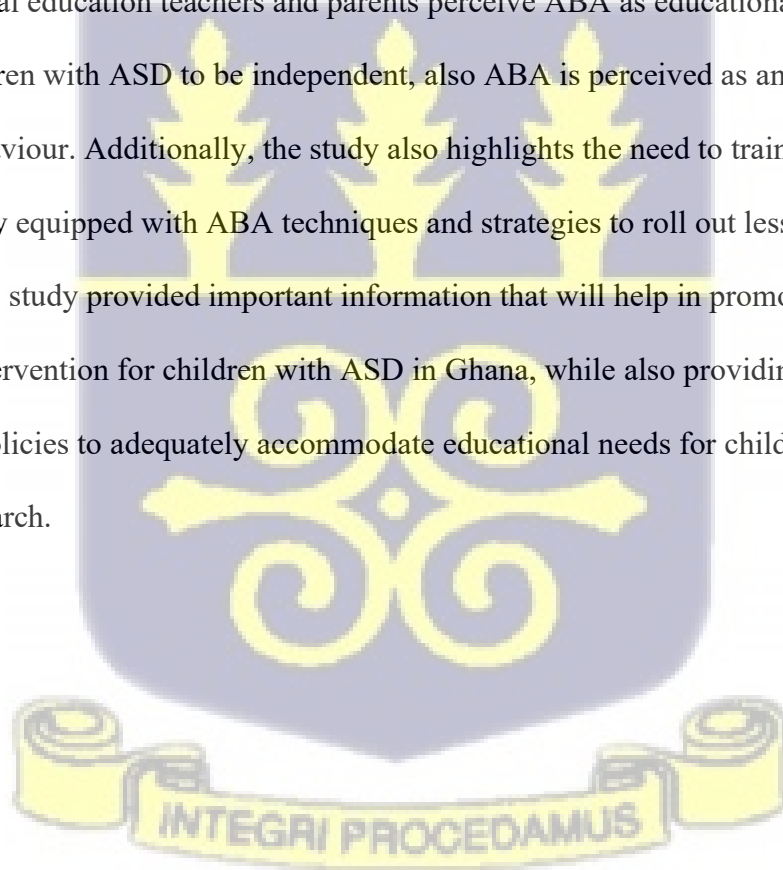


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LIST OF ABBREVIATIONS

ASD: Autism Spectrum Disorder

ABA: Applied Behavioural Analysis



CHAPTER ONE
INTRODUCTION

1.1 Background of the study

Autism spectrum disorders (ASD) are a group of life-long neurodevelopmental conditions characterise by significant deficits in the social and communication domains and by restrictive, repetitive, and ritualistic patterns of behaviour, interests, or activities (American Psychiatric Association [APA], 2013). Autism is a neurobiological disorder that is present from birth or very early in a child's development (National Research Council, 2001). The disorder is usually diagnosed before age 3, persists through adulthood, and has no definite etiology or cure (American Academy of Paediatrics, [APA] 2001; National Research Council, 2001). Although symptoms differ from one child to the next, all autism spectrum disorders are marked by significant impairment in reciprocal social interaction and communication skills and the presence of repetitive and stereotyped behaviours and interests (DSM-IV-TR, 2000).

Before diagnosing an individual with ASD, the person's developmental, communication and behaviour history must be properly assessed. The diagnostic criteria are outlined in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), published by the American Psychiatric Association (APA, 2013). The criteria for ASD require persistent deficits in social communication and social interaction over multiple contexts, restrictive and repetitive patterns of behaviour, interest, and activities. Also, these symptoms must be present in the person's early developmental period but may not be fully exhibited until societal demands exceed the individual's limited capacity, or they are hidden or controlled by learned strategies. Additionally, the symptoms must cause a clinically significant impairment in the person's daily activities. These impairments and disturbances must not be better explained by

an intellectual disorder nor a developmental delay (Miller, Ozonoff & Yu, 2024). It is important to recognize that ASD is a lifelong condition, and individuals may continue to face challenges in different areas of functioning. Factors such as cognitive abilities, language skills, and the presence of co-occurring conditions can also impact the prognosis (Hodges, Fealko & Soares, 2020).

The World Health Organization ([WHO], 2023) has reported that about 1 in 100 children has ASD. The deficits associated with ASD may be detected in early childhood, but the individual is often not diagnosed with autism until much later (WHO, 2023). ASD affects individuals worldwide, including Ghana. According to a study by Akuffo et al. (2021), the estimated prevalence of ASD in Ghana is 0.68%, which is like the prevalence rates reported in other African countries. However, there is a lack of awareness and understanding of ASD in Ghana, and there are limited resources and services available to support individuals with ASD and their families (Oti-Boadi et al., 2022). In Ghana, many people with autism and other developmental disorders are not diagnosed or do not receive appropriate treatment and support (Oti-Boadi et al., 2022). This can lead to challenges in socialization, communication, and behaviour, as well as difficulties in accessing education and employment opportunities (Ozerk, Ozerk & Zaldivar, 2021).

Research has shown that individuals with developmental disabilities including autism lack access to appropriate support services, including educational interventions, therapy, and community resources (Aderinto, Idowu & Olatunji, 2023). This has been attributed to beliefs associated with these disabilities resulting from parents' sin against the gods or punishment from supernatural forces (Alhassan et al., 2020; Avoke, 2002; Oti-Boadi, 2017). The presence of these beliefs leads parents to seek religious interventions such as prayers, herbal medicine, and sacrifices (Oti-Boadi et al., 2020). Thus, many children with ASD are not enrolled in educational interventions that seek to support their behaviour deficits and promote

their overall well-being (Anthony, 2010). However, in a recent study in Nigeria, parents, reported that they perceived autism as a medical condition that required professional intervention such as medication and therapy. They believed that early diagnosis and treatment could help the child manage the symptoms and improve their quality of life (Eseigbe et al., 2017).

Early intervention has been found to be an essential part of the development of children with ASD. There is emerging evidence for early behavioural intervention for children with ASD (Eldevik et al., 2012; Salomone et al., 2016; Warren et al., 2011). Klintwall et al. (2021) emphasized the importance of continuous support and services beyond early childhood as adolescents and adults with ASD may face unique challenges related to transitioning into adulthood and independent living. Early intervention improves communication skills, interpersonal skills, motor skills and play skills. This will also reduce autism symptoms and behavioural problems (Burnette et al., 2016). Professionals working with children who have been diagnosed with ASD agree that early intervention is critical (Corsello, 2005). According to Rogers et al. (2014), early diagnosis and intervention for children with ASD can significantly enhance their communication, social skills, and adaptive functioning.

Globally, several educational interventions including speech therapy, Applied Behaviour Analysis (ABA), Picture Exchange Communication System (PECS), social stories, video technology and occupational therapy have been developed and proven successful in promoting skill development and minimizing problem behaviours in children with ASD (Sigafos et al., 2017; Stefani, 2021; Syriopoulou-Delli & Warren et al., 2011). ABA is one of the most utilized interventions used for children with ASD (Chichkine et al., 2022).

Applied Behaviour Analysis (ABA) is an evidence-based intervention that uses principles of behaviourism to teach new skills and reduce problem behaviour in individuals

with ASD (Cragin & Murillo-Candelas, 2023). ABA has been shown to be effective in improving communication, social skills, and adaptive behaviour in children with ASD (Reichow et al., 2018). According to Sacrey et al. (2021), early intensive behavioural interventions, such as (ABA), can have positive effects on cognitive and adaptive functioning, as well as reducing the severity of autism symptoms.

ABA has been used in a variety of settings and with a range of populations, including individuals with ASD, developmental disabilities, and mental health disorders (APA, 2021). ABA uses principles of learning and behaviour to develop effective interventions for individuals with behavioural deficits (Klintwall et al., 2015, Lai et al., 2014; Johnson & Myers, 2007). ABA uses a range of skill such as discrete trial training, naturalistic teaching, and functional communication training to teach new skills, reduce problem behaviours, and improve socialization and communication (Steege et al., 2007). Studies have shown the ABA interventions are effective in promoting skills and behaviours associated with individuals with ASD and other developmental disabilities (Lai et al., 2014; Smith et al., 2015; Steege et al., 2007). Smith et al. (2015) found that a 40-hour intensive ABA-based intervention improved language skills, social skills, and adaptive behaviour in children with ASD.

The use of ABA as an educational intervention is novel in Ghana, and there is limited research in its use and effectiveness. While there is limited information on the use of ABA in Ghana, some studies have shown that ABA-based interventions are effective in modifying behaviours and meeting the educational needs of children with ASD (Arku et al., 2017; Ntim-Amponsah et al., 2020). Ahorsu (2021) conducted a qualitative study that sought to investigate the use of ABA as management and educational intervention for ASD in Ghana. The findings of the study reported that children receiving ABA intervention showed signs of independence, they are able to master social skills, motor skills, communication and attention.

Despite the reported effectiveness of ABA in improving symptoms in children with ASD, the perceptions of parents and teachers of this intervention program have been found to be important to its success as an educational and behavioural intervention strategy (Helton & Alber-Morgan, 2018). Ntim-Amponsah et al. (2020) conducted a pilot study of ABA for children with ASD in Ghana. This study found that ABA was feasible and acceptable to parents and teachers in Ghana, and that it was effective in improving the social communication and play skills of children with ASD. According to Amu et al. (2018) one of the challenges with associated with catering to the educational needs of children on the autism spectrum is the lack of awareness and availability of evidence-based interventions, including ABA, for children with autism in Ghana. This suggests that ABA may not be widely known or used as an educational intervention in Ghana.

The lack of knowledge and understanding of ASD and evidence-based interventions, including ABA, is a significant challenge for both parents and teachers (Abda, 2022). Several misconceptions exist on ABA as an educational intervention for children with ASD and it has been frequently undermined or misunderstood (Anderson & Carr, 2021). These misconceptions include but not limited to ABA turns children into robots, employs bribes to encourage good behaviour, is all about saying no, and all ABA programs are the same (Van Rensburg, 2020). In a study in Europe, parents of children with ASD reported experiencing frustration with educational professionals' aversion towards ABA procedures (Dillenburger & McPhilemy, 2013). Additionally, parents who decide to choose ABA-based interventions for their children with ASD must deal with the frustration they experience from educators because of the misconceptions surrounding ABA (Keenan et al., 2010).

Parents provide primary care for their children and as such their perception of and decision with regards to the educational intervention their children receive (Aarthun et al., (2018), Estes et al., 2021). Research has shown that the misconceptions that exist on ABA

could also influence parental perceptions about ABA as an educational intervention (Cho, Ding, Giambona, Shen & Zhang, 2023). In assessing parents' perception of ABA, McPhilemy and Dillenburger (2013) found that some parents reported having low initial expectations about ABA's outcome and approach. However, studies have also shown that parents need the support of teachers' and educators to help them make about using ABA as an education intervention that seeks to help modify the behaviour of their (Guerin & Ridge, 2011).

Research indicates that teachers have limited knowledge of ABA as an educational intervention, however, they perceive the techniques and approaches of ABA to be a potentially effective intervention for children with ASD (Arku et al., 2017). According to McPhilemy and Dillenburger (2013), teachers were generally not open to ABA approaches and educational boards were consistently undermining ABA. Research shows the aversion of teachers towards the use of ABA is due to their lack of inaccurate information about the principles of ABA during their training (Hales & Skinner, 1992).

Moreover, the use of punishment and negative reinforcement in ABA and its associated beliefs contributes significantly to the difficulty with its acceptance and negative perceptions among teachers and educators (Axelrod et al., 1990). In a study by Kaff et al. (2007), investigating the beliefs of special about the effectiveness of communication interventions (e.g., establishing group expectations) and behaviour management strategies, the researchers found that the use of verbal praise and encouragement for appropriate behaviour, prompts and modelling, and regular communication with students. Some teachers have also claimed to be knowledgeable in ABA techniques (Randazzo et al., 2011). There is the need for more training and support for parents and teachers to better understand and implement evidence-based interventions for children with ASD, including ABA (Anaman-Torgbor et al., 2020).

1.2 Problem statement

Globally, educational interventions that support individuals with ASD abound (Odom, 2021). Applied Behaviour Analysis (ABA) is one education intervention that has been extensively studied with regards to its implementation for children with ASD and the perceptions of parents and teachers on the effectiveness of this behaviour strategy in modifying the behaviour and meets the educational needs of persons with ASD (Dillenburger, 2015; Gitimoghaddam et al., 2022) Generally, the beliefs associated with associated with developmental disabilities and specifically ASD in African societies prevent them from receiving education and care in educational institutions (Washington-Nortey et al., 2023).

In Ghana, there are few resources and support networks for children with ASD, and many families struggle to get quality therapeutic and educational programs for their children and may instead resort to mainstream schools with lack of appropriate accommodations or support for success in school (Frempong & Amuasi, 2021). In recent years, there is a steady rise in the use of ABA in Ghana and studies are emerging on its uses, implementations, and perceptions that surround it (Global Education Monitoring Report, 2020).

In Ghana, some Special schools available to children with ASD provide individualized education and therapy services including the use of ABA (Asante-Darko, 2021). Generally, general education teachers and parents as individual participant groups have been involved in few studies (Bunijevac & Durisic, 2017). However, exploring the perceptions of parents and special education teachers in one study is limited. The current study focuses on assessing parent and teacher perceptions of ABA as educational interventions for children with ASD and the challenges associated with it. The current study

provides useful information to support the use of ABA and the development of other intervention programs for children with ASD in Ghana.

1.3 Aims and objective of Study

This study explored the perceptions of parents and special education teachers regarding ABA as an educational intervention for children with ASD. The study was conducted.

- To explore the perceptions of parents and special education teachers regarding their experiences with ABA in meeting the educational needs of children with ASD.
- To explore parents' and special education teachers' knowledge about ABA as an educational intervention for children with ASD.
- To explore the barriers and challenges faced by parents and special education teachers regarding the use of ABA in Ghana.
- To explore recommendations that parents, and special education teachers have regarding the use of ABA in Ghana.

1.4 Relevance of the study

This study will give details on the experiences of special needs teachers and parents of children as they raise their children with ASD and their thoughts on the application of ABA as teaching technique for ASD. This study will expand the research literature in this area and add to the relatively small number of qualitative research studies. Also, research findings from the study will help in the formulation of better inclusion policies of the educational system. The study's conclusions will contribute to a deeper comprehension of the effects of ABA therapies on the schooling of kids with ASD.

In addition, this study will encourage future studies to explore further into the perspectives of parents of children with ASD and special needs teachers to gain more insight

into the best way to handle service delivery. A greater knowledge of the parents' priorities and expectations for their children's growth will aid in treatment planning and come from further research in this area. Results on the perceptions of parents and special needs teachers in Accra of children with ASD was presented by the study.

The study's findings will help decision-makers in the country determine whether to fund the construction of training facilities with trained and certified professionals that will provide appropriate skills, approaches and techniques to parents, special needs teachers and the general public to deliver ABA methods which will help cater to the educational needs of children with autism. However, more research will be needed to explore the perception of ABA among parents, special education teachers, caregivers, and other stakeholders in the Ghanaian context.



CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter discusses relevant theories and literature that centred around autism spectrum disorder, the importance of early intervention, Applied Behavioural Analysis and parents' and special education teachers' perceptions of ASD. The chapter also covers the effect of ASD on the child and the family; the coping strategies and techniques parents and special needs teachers have used in the management of ASD.

2.1 Theoretical Framework

This study relied on Ajzen's Theory of Planned Behaviour and the Social Learning Theory Model by Albert Bandura.

2.1.1. Theory of Planned Behaviour (Ajzen, 1991, Zhang, 2021)

The Theory of Planned Behaviour (TPB) is a social psychology theory that clarifies how people's attitudes, subjective standards, and sense of behavioural control affect their propensity to act in a certain way (Ajzen, 1991). TPB suggests that attitudes, subjective norms, and perceived behavioural control are the primary determinants of behaviour. The fundamental tenet of the Theory of Planned Behaviour is that people act rationally in conformity with their attitudes, subjective norms, and perceived behavioural control. (Ajzen, 2005; LaMorte, 2022). Asare (2015) reports that behaviours are analysed and predicted using planned behaviour, and behavioural intentions have a direct impact on actions. Planned behaviour is used to analyse and predict behaviours, actions are directly influenced by behavioural intentions. The interaction of three variables determines one's behaviour intent. These variables are attitudes toward the conduct, arbitrary standards, and perceived behaviour. Guided by Ajzen's (1991) planned behaviour theory, this study examines and

explores the perceptions of parents and special needs teachers of children with autism spectrum disorders and special needs teachers regarding applied behaviour analysis (ABA) as an educational intervention for children on the Autism Spectrum in the Greater Accra region.

The Theory of Planned Behaviour (TPB) can be used to explain parents' perceptions regarding Applied Behaviour Analysis (ABA) therapy for their children with autism. A study by Bishop et al. (2016) found that parents who had positive attitudes towards ABA therapy were more likely to have the intention to enrol their child in ABA programs. The researchers of the study suggested that parents' attitudes towards ABA therapy were influenced by their beliefs about its effectiveness, practicality, and acceptability. Another study by Nelson et al. (2017) used the TPB to examine the predictors of ABA uptake among parents of children with autism. They found that parents' attitudes towards ABA therapy, subjective norms which are the pressure from family members or healthcare providers and perceived behavioural control (i.e., access to services, cost) were significant predictors of their intention to enrol their child in ABA therapy. The Theory of Planned Behaviour (TPB) has undergone several expansions and modifications since its inception. The TPB model has recently been expanded with an emphasis on increasing its predictive validity by adding new variables or changing existing ones, studying the impact of emotions, and assessing the model's relevance to innovative health behaviours. Zhang et al. (2021) identified several moderating factors that can also affect the strength of the TPB model, these factors include, age and gender.

2.1.2. Social Learning Theory Model (Bandura, 1977, McLeod, 2023).

This theory adds two significant ideas to the existing behaviourism theories. According to Bandura, mediating actions occur between stimuli and reactions and through observational learning, behaviour is learned from the environment (McLeod, 2023). According to the social learning hypothesis, people learn and adopt behaviours through watching others. This process is

known as observational learning. During the observational learning process, we frequently tend to imitate those who are influential, powerful, smart, successful, or nurturing in our lives. The well-known Bobo doll experiment (Bandura, 1961) is one example of how children observe the interactions and behaviours of people in their immediate surroundings.

Several factors increase the likelihood that behaviour would be replicated, according to Bandura's findings. When there are similarities, it is more likely to copy the behaviour of others who are like us. This is because we are more inclined to identify with these people, which makes their actions appear relevant and doable (Berkman, 2018). The similarity in terms of age, gender, ethnicity, or even shared values and interests can be considered.

Identifying also means taking on the behaviours, attitudes, values, and beliefs of the person you identify with. People are driven to identify with models because they aspire to have a quality that is present in them (McLeod, 2023). Albert Bandura's Social Learning Theory informs us that people pick up new skills through watching, copying, and modelling the behaviour of others. According to this theory, we can learn new skills and behaviours by copying others through a process known as vicarious learning.

Bandura's theory is distinct from traditional behaviourism since it places a strong emphasis on how learning occurs through cognitive processes. He also put out the idea that people have expectations and ideas that shape their conduct and that they are conscious of the connections between their acts and the results of those actions (Evans, 2023). Understanding how our surroundings and the people we interact with affect our behaviour is made easier by the social learning theory. It clarifies how people learn new abilities and behavioural patterns by observing the way others behave and attempting to imitate it.

People are more likely to copy a model's actions if they see that they will be rewarded for them, whereas actions that have negative consequences are less likely to be imitated. This is known as vicarious reinforcement (Jud et al., 2024). People in high-prestige positions,

such as leaders, celebrities, or successful people in our field of interest, are more likely to be imitated. As a result of their frequent admiration and status as role models, high-status people are more likely to have their actions viewed as admirable and worthwhile for imitation.

Individuals who possess expertise or knowledge in a certain field are also more likely to be imitated by others. This is so that goals in that area can be achieved in a way that is regarded as effective and efficient by these people's actions. Both reinforcement and punishment are used by others around a child to address the conduct they see them imitating. If a child copies the behaviour of a role model and receives positive results, the child will probably keep acting in the same way (McLeod & Evans, 2023).

2.2 Autism Spectrum Disorder (ASD)

Autism Spectrum Disorder (ASD) is a lifelong neurodevelopmental disorder characterized by difficulties in the social-communication domain, and the presence of restricted and/or repetitive interests and/or behaviour (American Psychiatric Association (APA), 2013; ICD-11 for Mortality and Morbidity Statistics, 2022) manifested before the age of three. Leo Kanner described eleven children he had examined as having autism in his 1943 paper, which was the first to describe ASD. These children, he observed, merely desired to be alone and be separated from other people. According to Kanner (1943), the children displayed severe social impairment, varied language, and repetitious restrained behaviours.

Social interaction, verbal and nonverbal social communication, IQ, and motor skills are all impaired in ASD patients. Additionally, these patients display peculiar pursuits, repetitive actions, and peculiar reactions to sensory stimuli (Lord et al., 2018). The spectrum of symptoms and severity of ASD differ significantly from child to child, and clinical manifestations rely on age, cognitive and language ability, and co-occurring diseases. The Diagnostic and Statistical Manual (DSM-5)'s most recent revision defines ASD as

impairments in two main areas: the first being social communication and interaction, which includes difficulties with social-emotional reciprocity, difficulties with using nonverbal strategies during social interaction, and difficulties developing, maintaining, and understanding relationships; the second area of impairment are the constrained, repetitive, and stereotyped patterns of behaviour, manifested by unusual repetitive movements or behaving in stereotyped ways (Johnson et al., 2000; Hyman et al., 2020). Moreover, the DMS-5-TR (American Psychiatric Association [APA], 2022) lists the following diagnostic criteria for autism spectrum disorder, professionals diagnose autism spectrum disorder based on difficulties in 2 areas: ‘social communication’, and ‘restricted, repetitive and/or sensory behaviours or interests. To be diagnosed with autism spectrum disorder, children must: have difficulties and/or differences from what is typical in both areas, have had characteristics from early childhood, even if these are not picked up until later in childhood.

2.2.1. *Difficulties in social communication*

To be diagnosed with autism spectrum disorder, children must have difficulties and/or differences from what is typical in social communication (Kasari et al., 2013). Rice et al. (2022) opines that some signs in this area include rarely using language to communicate with other people, not speaking at all, rarely responding when spoken to, not sharing interests or achievements with parents, rarely using, or understanding gestures like pointing or waving, using only limited facial expressions to communicate, not showing an interest in friends or having difficulties making friends and rarely engaging in imaginative play.

2.2.2. *Restricted, repetitive, and sensory behaviour or interests*

Before a child is diagnosed with autism spectrum disorder, the child must have difficulties and/or differences from what is typical in restricted, repetitive and/or sensory behaviours or interests (Lordan et al., 2021). Some signs in this area include lining up toys in

a particular way over and over again, frequently flicking switches or spinning objects, speaking in a repetitive way, having very narrow or intense interests, needing things to always happen in the same way, having trouble with changes to their schedule, or changing from one activity to another and showing signs of sensory sensitivities like becoming distressed by every day sounds like hand dryers, not liking the feel of clothes labels, or licking or sniffing objects (Okoye et al., 2023).

Anxiety, ADHD, obsessive-compulsive disorder, mood disorders, or other disruptive behaviour disorders are additional behavioural or psychiatric co-occurring illnesses in ASD (Soke et al., 2018). Baio et al. (2018) report that all racial, cultural, and socioeconomic groups experience ASD, yet the diagnosis varies widely amongst them. Children who have ASD are consistently more likely to be Caucasian than Black or Hispanic.

2.2.3. *ASD in the Ghanaian Society*

Bakare et al. (2009) reports the prevalence of ASD was determined to be 0.08 percent in Ghana in 2011, and it rose to 11.4 percent among Ghanaian schoolchildren with intellectual disabilities in 2012 (Bakare et al., 2012). There has not been enough study on ASD in Ghana, but it has been estimated through secondary sources that 38.7% of Ghanaian children under the age of 14 are affected (Ruparelia et al., 2016). ASD is present throughout Africa, according to studies conducted in other African nations, even though the precise frequency in Ghana is unknown. According to Sampson & Sandra (2018) in their study where they do a comparative study on knowledge about autism spectrum disorder among paediatric and psychiatric nurses in public hospitals in Kumasi, the study findings indicate that there is an extremely low overall level of knowledge among both paediatric nurses and psychiatric nurses which raises questions about the nurses' ability to recognise the condition.

Twi-Yeboah et al. (2021) conducted a study to find out knowledge and perception of autism among preschool teachers in the Ledzokuku-Krowor municipal assembly, Ghana. The results of the study show that preschool teachers had little knowledge of ASD but were found to have generally good attitudes and opinions about caring for children with autism. The results also showed that respondents supported the inclusion of pre-schoolers with special needs in regular classrooms and strongly agreed that the government must offer appropriate assistance to make this integration possible.

The concept of pregnancy and giving birth is seen as a blessing in the Ghanaian culture, it also comes with a lot of expectations (Agbenyega, 2015). After birth, the family anticipates that the child will be able to sit, crawl, walk, and perform other skills within a certain amount of time. When a disabled child is born, the family may respond negatively (Avoke, 2010; Oti-Boadi, 2017). There are numerous assumptions and perceptions concerning ASD. ASD is thought to be brought on by both genetic and environmental causes, according to WHO (2017). However, in most African countries including Ghana, ASD is perceived to be caused by supernatural forces and witchcraft (Bakare, 2009; Oti-Boadi, 2017).

2.2.4 Challenges in assessing ASD services.

The ability to access ASD services is impacted by several circumstances. These include physical and economical constraints. Another major hurdle is the lack of available services (Bulson & Dababnah, 2015). Amu, Dickson, and Mensah (2019) report that obtaining diagnostic and treatment services for ASD is a significant challenge for many families in Ghana. These barriers include lengthy wait times, high costs, and a shortage of skilled medical professionals. Furthermore, impeding access to school and community support is the stigma and discrimination that many families experience due to their child's

condition. Rural communities confront considerable difficulties in providing adequate access to care for ASD, according to Antezana et al. (2017). Due to the possibility of delayed ASD screening and diagnosis and the subsequent late implementation of the intervention, this results in lower educational and functional outcomes.

As they prepare for the child's intervention and education, parents continue to experience stress. Parents have expressed disengagement, saying that they are not involved in their child's upbringing or educational plans (Keenan et al., 2010; Parsons and Lewis, 2010). Sometimes a diagnosis is not made until the child is old enough to attend school (Brett et al., 2016; Hosozawa et al., 2020). Parents are also worried about their children feeling alone in school due to a lack of personalised attention (Humphrey & Lewis, 2008; Stoner et al., 2005).

There are several obstacles that limit access to services, according to a study among disabled individuals done in Tamale, in the northern portion of Ghana. Some examples include but are not limited to, informational barriers, institutional impediments (rehabilitation centres, non-performing legislation), and attitudinal barriers such as labelling/stigma, discrimination, and negative images of people with disabilities (Naami, 2014; Oti-Boadi et al., 2020).

Senoo et al. (2024), conducted an exploratory descriptive qualitative study to investigate the barriers of inclusive education of children with autism. The study included 17 participants, purposively sampled from mainstream schools in the Greater Accra region, that taught at least a child that has been clinically diagnosed with ASD. The results from the results from the study show that, parents of children with ASD do not cooperate easily with teachers and this is because of certain factors such as having superstitious beliefs, being in denial about their child's condition, poor parental support and the parents having unrealistic expectations. Additionally, the study cited that a lack of understanding resulting from

insufficient training in dealing with children with special needs, particularly those with ASD, was a major barrier.

To gain more insight into how Ghanaian medical professionals view and handle children with autism spectrum disorder, Lim et al. (2023) conducted a study where the findings indicate that healthcare professionals have significant gaps in their understanding of autism spectrum disorder (ASD) and related training. The paper highlighted the importance of training Ghanaian medical professionals about autism spectrum disorder.

Also, a major issue exists in Ghana because of a lack of resources, including qualified medical personnel and insufficient money for ASD research. There is a shortage of psychiatrists and clinical psychologists in Ghana, according to the World Health Organisation (WHO). These are professionals that are important in the diagnosis and treatment of ASD.

2.3 Applied Behavioural Analysis (ABA)

Applied behaviour analysis (ABA) has been studied extensively with children with autism of all ages since the early 1960s, and it is still one of the most well liked and often implemented therapeutic techniques for children on the autism spectrum (National Research Council, 2001).

There is no known cure for ASD, according to the National Institute of Neurologic Disorders and Stroke (2015). Therapies and behavioural interventions are created to treat symptoms and can greatly improve symptoms. The optimum treatment strategy coordinates interventions and therapies to address each patient's unique needs (Karam et al., 2021). Most medical specialists concur that the earlier the intervention, the better. Applied Behavioural Analysis is an example of an intervention that has produced effective results in managing ASD (National Institute of Neurologic Disorders and Stroke, 2015). A comprehensive

therapy in helping the development of the child is therapy Applied Behaviour Analysis (ABA) (Zeanah, Berlin, & Boris, 2011).

ABA is a scientific based therapeutic intervention that focuses on understanding and improving human behaviour. ABA is used to manage a wide range of behavioural challenges, including behaviours associated with ASD. In ABA therapy, the principles of behaviours are systematically applied to help people with ASD learn new skills, reduce challenging behaviours while improving their overall quality of life (Cooper, Heron & Heward, 2020).

Based on learning theory, a branch of behavioural psychology, called applied behaviour analysis (ABA) was developed. The first application of ABA techniques with young autistic children was conducted by Lovaas (1987), a psychologist at the University of California, Los Angeles (UCLA). According to this model, when a behaviour is followed by something desirable or valuable, positive reinforcement is utilised to strengthen the behaviour. The child is given numerous opportunities to learn new skills with reinforcement and skills are broken down into little steps. The objectives of the intervention and the kinds of reinforcers employed are adapted to the needs of each individual child, whose performance is assessed through data monitoring and direct observation (Heflin & Simpson, 1998; Lovaas, 1987).

Finding certain target behaviours that are observable, measurable, and socially relevant is a key component of ABA. These abilities can include effective communication and decreasing problematic behaviours. To identify the variables influencing the behaviour, a detailed examination is carried out in ABA. Functional analysis, which entails determining the causes (triggers) and effects (reinforcements) connected to the target behaviour, is frequently included in this assessment (Baer et al., 1968).

ABA has been identified as a methodical and research-based approach to comprehending and changing behaviour. For people with developmental disabilities or behavioural issues, it is frequently utilized in behaviour therapy and interventions (Cooper et al., 2020). Antecedents, behaviour, and consequences, or the ABC model, is a prominent and frequently used foundational model that aims to increase, decrease, or modify behaviour by manipulating either or both factors. This creates a transferrable tool that can be used to effectively target behaviours of interest (Bijou et al., 1968; Dyer, 2013). However, many of these are widely used in other intervention and education settings (Granpeesheh et al., 2009; Sandbank et al., 2020; Stahmer et al., 2005). These techniques are also worth noting and are frequently associated with ABA. These include reinforcement, extinction, prompting, video modelling, and the Picture Exchange Communication System (PECS).

There are several key principles and components that guide practitioners when using ABA; Behavioural assessment; ABA starts with a thorough assessment of the individual's behaviour. This involves defining target behaviours (observable and measurable actions) and collecting data to understand when, where and why these behaviours occur (Baer, Risley & Wolf, 1968). Functional Behaviour Assessment (FBA): This is a specialized form of assessment that seeks to identify the underlying functions or reasons for challenging behaviours. This helps design effective interventions (O'Neill et al., 1997). Objective Measurement: ABA relies on precise and objective measurement of behaviour using quantifiable terms, such as frequency, duration, and intensity (Cooper, Heron, & Heward, 2020). Behavioural Interventions: Based on assessment results, ABA practitioners design and implement evidence-based interventions to target specific behaviours. These interventions are individualized and may include strategies such as reinforcement, prompting and shaping (Miltenberger, 2015). Data collection and analysis: ongoing data collection is a fundamental part of ABA. It allows practitioners to monitor progress, make data-driven decisions, and

adjust interventions as needed (Slocum et al., 2014). Positive Reinforcement: ABA emphasizes the use of positive reinforcement, which involves providing rewards or consequences to increase desired behaviours. This approach is grounded in the principle that behaviours followed by positive outcomes are more likely to be repeated (Skinner, 1938). Prompting and Prompt Fading: Prompting involves providing cues or assistance to help individuals perform a desired behaviour. Over time, prompts are faded to promote independent functioning (Sundberg & Partington, 1998). Generalization and Maintenance: ABA aims to ensure that desired behaviours generalize to various settings and are maintained over time. This involves teaching skills in multiple contexts and monitoring for long-term retention (Stokes & Baer, 1977). Ethical Considerations: Ethical principles are central to ABA practice. Practitioners are guided by the principles of beneficence (acting in the best interests of the client), autonomy (respecting the individual's rights and choices), and others (Bailey & Burch, 2016). Individualization: ABA interventions are highly individualized, considering the unique strengths, needs, and preferences of each person (Sundberg & Partington, 1998).

These components of ABA are foundational to its effectiveness in addressing a wide range of behavioural challenges and promoting skill development. Practitioners and researchers in the field of ABA adhere to these principles to design and implement modules that are evidence-based and person-centred (Slocum, 2014).

In ABA, behavioural treatments are created based on analysis and assessment. Positive reinforcement is a typical technique used in these therapies, in which desired behaviours are followed by prizes or desired objects. Increasing the frequency of preferred actions while reducing challenging or unpleasant behaviours is the aim (Smith, 2001).

One of the core principles of ABA is data-driven decision-making. On the frequency, length, and severity of behaviours throughout time, practitioners gather data. This information facilitates the adjustment of interventions and permits the assessment of progress (Lerman et al., 2004).

The generalization component of ABA is also stressed, making sure that behaviour modifications take place in a variety of contexts and with various people. According to Cooper et al. (2020), this encourages the application of newly acquired abilities in practical settings. Plans for ABA interventions must be customized to the requirements, preferences, and capabilities of everyone. The practice of ABA must take ethical considerations into account. This is to protect the rights and well-being of people undergoing interventions, practitioners follow ethical rules.

Ringdahl et al. (2023) defined Applied Behavioural Analysis (ABA) as a scientific methodology that has been widely used to assess and manage behaviours that pose risks to the safety and well-being of people with autism. ABA is also defined as the scientific practice that studies the behaviours of humans and animals by paying close attention to the social validity of concerns in addressed and related outcomes (Wolf, 1978). These practices include data collection, observations, development of individualized strategies, and evaluation of the implemented strategy. In simple terms, applied behaviour analysis (ABA) aims to comprehend and modify behaviour. It is not a specific therapy, but rather a variety of diverse approaches and methods that can be utilised to assist people on the autism spectrum in picking up new abilities and behaviours.

Although Applied Behaviour Analysis (ABA) is a tried-and-true method for changing behaviour, research on its application and use in Africa may be underrepresented in comparison to other continents. But supporting people in Africa who have developmental

disabilities or behavioural issues can still be done using ABA principles. It is important to take cultural differences and customs into account when using ABA in Africa. To ensure that they reflect the norms and values of the neighbourhood, ABA interventions should be sensitive to cultural differences (Mulick et al., 2011). Another difficulty in adopting ABA in Africa may be the lack of skilled personnel, instructional materials, and technology. It is crucial to try to train local professionals and modify interventions based on the resources at hand (Munir et al., 2014).

The effectiveness of the ABA intervention process can be improved by including families and communities (Munir et al., 2014). Communication and language issues can affect how ABA is used (Hernandez et al., 2023). Effective communication techniques and adaptation of interventions to regional languages are crucial (Munir et al., 2014, Zhang, 2023). While there may not be much local research on ABA applications in Africa, it is essential to confirm the efficacy of interventions in the region's cultural and social setting.

2.4 Review of related literature

2.4.1 Impact of ASD on the family

Parents of young people with ASD are becoming more common, and many of them are also caring for them (Oti-Boadi et al., 2020). There are reports of higher levels of stress, anxiety, and depression in parents of children with ASD (Appiah, 2023; Oti-Boadi et al., 2022). Families of people with autism spectrum condition frequently experience significant levels of anxiety, stress, and isolation (Bozkurt et al., 2019; Cohrs & Leslie, 2017; Oti-Boadi, 2017). Healthcare professionals that provide care for people with autism have primarily relied on family-centred care, which emphasises the importance of understanding carers' quality of life (QOL) in managing autism and recognises carers as a key to positive outcomes in autism management (Gentles et al., 2020).

Appiah (2023) conducted a qualitative study with a sample size of 15 parents of children with ASD through purposive sampling to explore their experiences with children on the autism spectrum. The study findings reported that because of caring for their children with ASD, parents developed coping mechanisms. They were able to continue providing care with little to no stress because of these techniques. One of the main coping mechanisms used by parents was family and social support (Manu, 2012). Additionally, there were social, physical, and psychological difficulties for parents of children with ASD, to help parents deal with this circumstance effectively, it will greatly help if their relatives and community members offer them enough support. This study seeks to highlight how ABA as an educational intervention for ASD can help with some challenges parents face as ABA can help with behaviour management. According to meta-analyses, ABA leads to a slight to moderate improvement in adaptive behaviour, such as expressive language, communication, and socialisation (Chung et al., 2024).

A study conducted by Amo-Adjei (2023) that studied the caring, parenting, and support services for children with special needs (CwSNs) in Ghana reported that given the severity of the disabilities their children had, some parents, particularly women, needed a lot of help and support to carry out basic functioning tasks. To give their CwSNs more care time, several parents who had children who were extremely dependent in terms of functional activities eventually quit their jobs.

According to Anum (2011), the individual is regrettably not the only one who is impacted by the impairment. It includes close friends, family, and other people who have a connection to the person. Although family members may not all have the condition, research on the family and disability has found that stigma is still present from the wider public (Anum, 2011; Slikker, 2009).

Curley et al. (2023) did a study that reviewed five electronic data bases highlighting eleven articles that focused on interventions that helped to reduce stress experienced by parents of children with autism. The systematic review identified twenty-two interventions employed by parents to address the needs of the children on the spectrum. The results of the review of ABA-informed therapies demonstrate that, by lowering maladaptive behaviour, it is successful in lowering parenting stress. Additionally, the study discovered that integrative therapies informed by cognitive behavioural therapy, seemed to provide superior results compared to single-intervention approaches. This was shown by the evidence supporting Mindfulness-based Positive Behaviour Support (MBPBS), which integrated the best features of CBT, ABA, and PEP to create a tailored intervention that included stress-reduction strategies like mindfulness meditation, parent education, and specialised child behaviour management plans to deal with difficult behaviour.

2.4.2. Parent's involvement in ABA and their perceptions

Due to the rising frequency of children with ASD (Centres for Disease Control and Prevention, 2010), communication between parents of children with ASD and educational professionals is essential for effective programme preparation. For an ASD-ABA treatment program to run smoothly and effectively, it is necessary that parents are involved in the process. Activities parents can get involved in include but are not limited to attending workshops and training centred around ABA and ASD, involving themselves in educational meetings and training combining techniques and strategies learned in the home. Also, parents can reach out to other parents and professionals that will help with their child's education and general well-being, Also, it will be ideal if parents engage in frequent evaluations to monitor progress (Solish et al., 2015). The social motivation for a parent to engage in therapeutic

activities may lay in part in their perception of social support from their significant others (Fisher et al., 2006).

Dillenburger et al., (2012) conducted a quantitative study cross-sectional survey with a sample size of 162 titled “ABA-Based Programs for Children Diagnosed with Autism Spectrum Disorder: Parental and Professional Experiences at School and at Home”. The study generated findings whereby some parents felt that ABA can also be applicable to other areas aside ASD. Parents suggested about seven different areas aside ASD, which included sleep problems, self-control, sexual behaviours, stress, and anxiety, just to name a few. Result from the study also shows that parents whose children attend ABA-based schools were generally satisfied with their child’s educational provision, monitoring procedures and a level of staff training than parents whose children were not offered an ABA-based education.

Also, Denne et al. (2017) conducted a quantitative research study that investigated UK parents’ beliefs about ABA as an approach to autism education. The participants involved in the study were 151 that were recruited from the four nations of the UK. Most of the participants were mothers with children on the autism spectrum. The study found out that some parents did not have negative feelings and beliefs about ABA. The study also found out that, the main and significant predictor of parent’s beliefs towards ABA is their previous or current experience of a behavioural education intervention. Additionally, household income, a child’s diagnosis and parental education play an important role with the parents’ beliefs about ABA. The study sheds more light on the importance of understanding the relevance of a parent’s belief when choosing an intervention for their child and the factors that influence these decisions.

A phenomenological case study conducted by Kissi-Abrokwah & Kodua-Ntim (2022) titled, “The concept of autism spectrum disorder: a study on knowledge sharing protocol among parents with autistic children in Ghana” sought to identify how parents that have

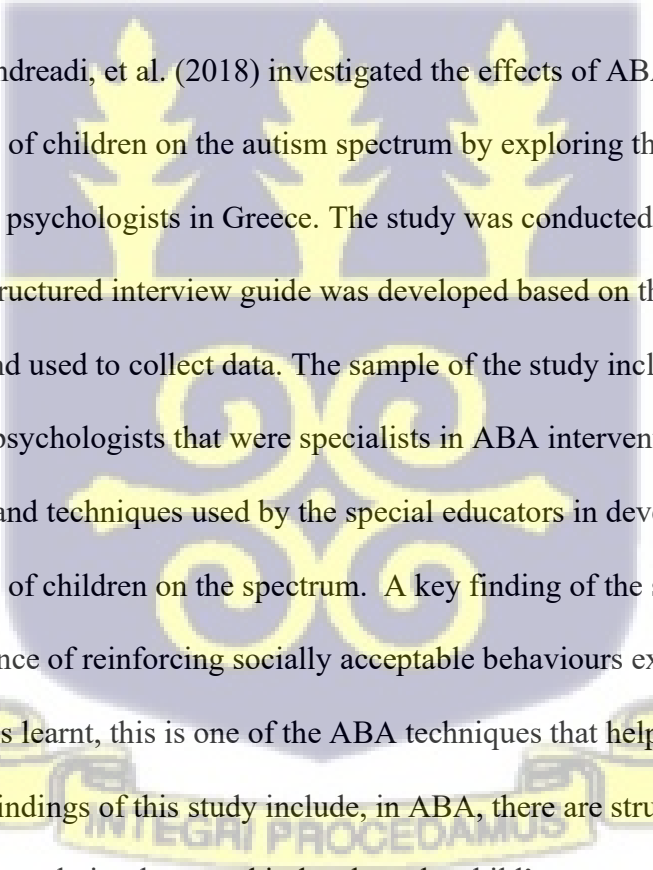
children on the autism spectrum share knowledge and techniques concerning their children. The study included 12 parents as participants that were recruited from 4 autism awareness centres in the country. The findings of the study reveal that parents of children living with autism find knowledge sharing practices very useful as it helps them in their day-to-day activities. Also, sharing knowledge amongst themselves that the extent to which knowledge, techniques and methods are shared among parents living with children on the autism spectrum occur after brainstorming, mentoring, face-to-face meeting, peer assistance and storytelling, just to name a few.

A mixed method design was employed in a study carried out by Giambona et al. (2023) that focused on analysing how parents see the connection between the level of ABA interventions and the severity of present autism symptoms, adaptive functioning, and school placement. The study was done in the United States and recruited seventy-two participants that had children diagnosed with ASD based on the DSM-IV-TR or DSM-V criteria. Major findings of the study include parental feedback indicating that social and life skills were taught during early intensive behavioural intervention (EIBI). According to the parents, the child's present adaptive ability level benefited from prior EIBI. Furthermore, EIBIs were most beneficial for children when given at a young age, according to parents. Parents also felt that EIBI worked best when the intervention was conducted consistently and cooperatively by the school, the family, and every team member.

2.4.3. Special education teachers' perception of ABA

Ahorsu (2021) conducted a qualitative study that investigated the use of ABA as management and educational intervention for ASD in Ghana. The study consisted of nineteen participants that were recruited through purposive sampling. A semi-structured interview guide was used to collect data and data was then analysed using thematic analysis. The study also reported that teachers that have been trained to use ABA as an intervention for ASD

have the appropriate skills to manage children with ASD. According to teachers, ABA has given them the skills they need to manage difficult behaviours in children with ASD. Additionally, the study revealed there has been an increase in parents accepting ABA as an appropriate educational intervention for ASD. The study further reported the reduction of workload, family stress and worry of parents of children with ASD. However, participants then reported on the difficulty of making ABA a popular choice of intervention for ASD in Ghana, citing a lack of adequate resources and the expensive nature of ABA as an educational intervention. The study recommended the tertiary institutions train more people to be equipped with ABA strategies and techniques by adding ABA in their curriculum especially for institutions that run special education courses.



A study by Andreadi, et al. (2018) investigated the effects of ABA on the communication skills of children on the autism spectrum by exploring the perceptions of special educators and psychologists in Greece. The study was conducted in a qualitative approach and semi-structured interview guide was developed based on the curriculum of children with ASD and used to collect data. The sample of the study included nine special educators and seven psychologists that were specialists in ABA interventions. The study analysed ABA steps and techniques used by the special educators in developing the communication skills of children on the spectrum. A key finding of the study is, teachers highlight the importance of reinforcing socially acceptable behaviours exhibited by children and generalizing skills learnt, this is one of the ABA techniques that help in behaviour modification. Other findings of this study include, in ABA, there are structured programs for teaching and when properly implemented it develops the child's communication; some structures are joint attention and picture exchange communication system (PECS). Also, when teaching children living with autism, the cooperation of the participants and role modelling are an important part of ABA programs. In addition, the study reports that the

existence of early intervention and the contribution of parents are essential for the children's improvement with communication.

A qualitative study conducted by Ashour and Bagadood (2022) in Saudi Arabia that explored teachers' perspective on using ABA strategies to students with ASD indicated that ABA tactics are ineffectively implemented by administrative systems, and that management does not support their application to children with ASD. This study involved eight female teachers that were interviewed by using semi-structured interviews. Thematic analysis was used in analysing data. A key finding of this study is that there are several problems with the way special education is managed, but the most significant one is the disregard for ABA use, which includes considering it a personal preference. The insufficient organisation of the classroom setting, as well as the growing number of children in the class, was also reported. The study also recorded objections to the centres' provision of the instruments required to carry out the appropriate ABA strategies. In addition, the study reported that the families were unaware of these ABA strategies, which can cause them to not cooperate and not follow up making their efforts turn futile. The study recommended an improvement in training of teachers in ABA to appropriately and effectively cater to the educational needs of children, the study further recommends teaching families the ABA techniques and holding group counselling sessions to discuss very important strategies suitable for students with ASD.

2.5 Research questions

1. What are the perceptions of parent and special education teachers regarding their experiences with ABA in meeting the educational needs of children with ASD?
2. What are the parents and special education teachers' knowledge about ABA as an educational intervention for children with ASD?

3. What are some of the barriers and challenges faced by parents and special education teachers regarding ABA therapy in Ghana?
4. What are some recommendations that parents, and special education teachers have regarding the use of ABA therapy in the country?

2.6 Rationale of study

In Ghana, there are few resources and support networks for children with ASD, and many families struggle to get quality therapeutic and educational programs. Some children with ASD in Ghana attend special schools or centres that provide individualized education and therapy services (Asante-Darko, 2021). The perceptions of parents and special education teachers concerning the use of ABA have not been investigated as much as the barriers and challenges involved in taking care of children on the autism spectrum. Existing literature addresses the challenges that parents face in raising a child on the autism spectrum and their involvement in their children's education (Deku, 2017; Oti-Boadi et al., 2022). This study intends to fill the gap by examining and exploring the perceptions of parents of children with ASD as well as the that of the special education teachers on the use of ABA as an educational intervention.

2.7 Operational Definition of terms

Autism Spectrum Disorder (ASD): This is a neurodevelopmental disorder characterized by qualitative impairment in communication and reciprocal social interaction, repetitive activities and stereotyped movements, and restricted patterns of interest (American Psychiatric Association [APA], 2013). This term will be used interchangeably with autism.

Applied Behavioural Analysis (ABA): A scientific evidence-based approach to understanding behaviour and is a type of therapy that helps people, especially children with autism or developmental challenges, learn new behaviours and improve their social and communication skills.

Special education teachers: These are teachers that have been trained to cater and provide individualized education services to children with autism by using ABA techniques.

Social validity: According to Cooper et al. (2007), this refers to the extent to which target behaviours are appropriate, intervention procedures are acceptable, and important and significant changes in target and collateral behaviours are produced.



CHAPTER THREE

METHODOLOGY

3.0 Introduction

The section includes the research design, research setting, population and sample size and sampling technique. The sources of data, data collection instruments, procedure used in collecting data, ethical considerations, and data analysis.

3.1 Research design

This study utilized a qualitative design and applied a phenomenological approach to explore the perceptions of parents and special needs education teachers regarding the use of Applied Behavioural Analysis as an educational intervention for children on the autism spectrum. Bhandari (2020) is of the view that, qualitative research is a flexible method that tries to understand how people experience the world. It is different from quantitative research that collects and analyses numerical data for statistical analysis.

The qualitative research design was chosen for this study because of its thorough ways of exploring data and its flexible nature of data collection and analysis process. Instead of measuring and evaluating hypotheses using numerical data, as is the case with quantitative research, the primary goal of qualitative research is to examine and provide a thorough, and detailed account of phenomena from non-numeric data. Qualitative research is notable for its ability to explain and characterise relationships, personal experiences, and social norms. The process can be adapted as and when new patterns and ideas come up. Data collection in a qualitative research design occurs in the natural setting, the experiences, perceptions, and feelings of participants can be deeply described and in the long term be used designing and improving systems, behaviours, and norms (Bhandari, 2023). This study employed the

phenomenological research design, which seeks to gain insight and understand the feelings, thoughts, experiences, and perceptions of people concerning an event or phenomena of interest to the researcher. According to the Dovetail Editorial Team (2023), in a phenomenological study, only the accounts or views of the people or participants matter, the researcher's personal perceptions and assumptions about the phenomenon being studied are not important to the study.

Interpretive phenomenological analysis is important as it explores how people make sense of their significant live experiences (Smith et al., 2022). The IPA approach can provide researchers with the chance to delve further into the "lived experiences" of participants in a study (Smith et al., 2009). This study uses the phenomenological method as it involves delving into and exploring the participants' perceptions in their real lives. The study investigated extensively into the participants' personal experience and produced findings based on the personal experiences and narratives of people.

3.2 Research setting

This study was conducted in Cape Coast, the current capital of the Central Region of Ghana and the Greater Accra Region that is currently the capital city of Ghana. The Central Region is one of the sixteen regions of Ghana and renowned for the many elite high schools and tourism in the country. The Greater Accra Region is the most populated region in Ghana; it is also the most urbanized region of the country. Autism Compassion Africa (ACA) in Cape Coast and Therakidz in Greater Accra were selected for this study.

ACA is a Seattle based non-governmental organization with centres in Nigeria and Ghana. The centre in Ghana is situated in the Central Region of Ghana that oversees advocacy and raising awareness for children living with autism in West Africa. ACA also provides interventions to communities, families, and children on the autism spectrum in West Africa through the application of evidence-based Applied Behaviour Analysis (ABA)

therapy. ACA provides a school as well as well as training throughout Ghana and the larger region of West Africa. The school was opened in October 2017 and currently accommodates 12 students comfortably at the school and additional students through outside consultation at a one-to-one ratio of student to a teacher. Autism Compassion Africa was selected because of their active involvement in raising autism awareness, also the years of experience the institution has with handling children living with autism and in the application of ABA therapy as an intervention for children on the autism spectrum and finally, because ACA is one of the few schools established in Ghana that provides ABA therapy for children living with autism.

Therakidz is a non-governmental organization, located in the Greater Accra Region. Therakidz specializes in ABA techniques to help children living with autism adapt to society and live independently. The centre also specializes in the treatment of developmental challenges and delays. Teaching methodology used is of the one-on-one method as founded on the principles of Applied Behavioural Analysis (ABA).

In addition to this, Therakidz works with teaching and school support staff to help students of the centre integrate into mainstream learning environments based on the student's individual needs and abilities. The centre has been operating since 2013. Therakidz was also chosen as a research site because of their active engagement with ABA methods and techniques and how the centre also incorporates evidence-based elements of naturalistic teaching and elements of occupational therapy. Therakidz is one of the few schools established to cater to the educational needs and help children living with autism with general living using Applied Behaviour Analysis.

3.3 Population

Population in research can be explained as the entire group or set of individuals, events or objects that have specific characteristics that are of interest to the researcher.

According to Bhandari (2020), in research, a population does not always refer to people. Population can refer to a group containing elements of anything one wants to study. The population of this study was parents of children living with ASD and special education teachers who use ABA techniques in ACA and Therakidz.

3.4 Sample size

Nine (9) special education teachers using ABA and five (5) parents living with children with ASD in either ACA or Therakidz were the primary participants of this study. Creswell (1998) recommended that between 5-25 interviews were ideal for a phenomenological study; however, in 2013, Creswell revised this and suggested that a reasonable sample size for a phenomenological study should range between 3-25 participants. Creswell (2013) also suggested that an in-depth interview that has 10 participants is most important when seeking information. Having a sample size of 14 participants was ideal to fully understand the topic, as the study seeks to explore the perceptions of parents and special needs teachers regarding ABA as an educational intervention.

3.5 Sampling technique

Purposive sampling and snowballing techniques were used to select a sample from the population. The participants were intentionally chosen and were also encouraged to recruit potential participants for the study. Nikolopoulou (2022) describes purposive sampling as a group of non-probability sampling techniques where participants were chosen because they were needed in the researcher's study. According to Nikolopoulou (2022), the snowball sampling technique recruits new participants to form part of the sample. It is also known as network or chain sampling. Snowball sampling becomes very useful in research about participants who have specific characteristics and might be difficult to come by or identify (Warner & Wäger, 2018).

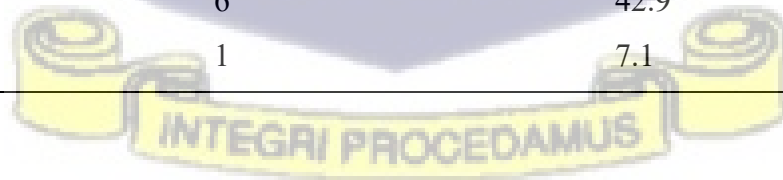
3.6 Participants demographic information

The study comprised 14 participants, with ten females and four males. Five participants were between the ages of 25-30, and nine participants were between 31-48 years. 13 participants were Christians, and one participant was a Muslim. Out of the 14 participants, 6 participants were married, 7 participants were single, and 1 was divorced.

The table below summarises the demographic information of participants in this study.

Table 1

DEMOGRAPHIC INFORMATION	NUMBER	PERCENTAGE (%)
AGE		
Young: 25-30	5	35.7
Old: 31-48	9	64.3
GENDER		
Male	4	28.6
Female	10	71.4
RELIGION		
Christian	13	92.9
Muslim	1	7.1
MARITAL STATUS		
Single	7	50
Married	6	42.9
Divorced	1	7.1



3.7 Demographics of parents

The participants 100% (n=5) are biological parents of the children with majority 90% (n=4) of them being the mothers and 10% (1) of them being the father. Many of the participants representing 90% (n=4) were females and 10% (1) were male. The ages of majority 90% (n=4) of the participants were between 33-48 years; 10% (n=1) was 40 years. Many participants, 90% (n=4) are Christians, while 10% (n=1) is a Muslim. Most participants 90% (n=4) had male children, while 10% (n=1) had a female child, the age range of children of the participants was between 8 and 16 years, with majority of the children 90% (n=4) within the range of 10-16 years and 10% (n=1) being within 0-8 years,

Table 2

Demographics of parents

Parent	Age	Marital status	Religion	Gender	Relation	Age of child	Gender of child
PP1	37	Married	Muslim	Female	Mother	8	Male
PP2	33	Married	Christian	Female	Mother	14	Male
PP3	39	Divorced	Christian	Female	Mother	10	Male
PP4	40	Married	Christian	Male	Father	14	Male
PP5	48	Married	Christian	Female	Mother	16	Female

Source: Field data (2023)

3.8 Demographics of special education teachers

The participants 100% (n=9) are special education teachers that use ABA as an educational intervention for children with ASD, with majority 67% (n=6) of them being females and 33% (3) of them being male teachers. The ages of majority 56% (n=5) of the participants were

between 30-37 years; 44% (n=4) were between 25-27 years. Majority of participants, 90% (n=8) are Christians, while 10% (n=1) is a Muslim. 78% (n=7) of participants are single, and 22% (n=2) of the participants are married. 44% (n=4) of participants have between 8-13 years of ABA working experience, whereas 56% (n=5) of participants have 2-24 months of ABA working experience.

Table 3

Demographics of special education teachers

Special education teachers	Age	Marital status	Religion	Gender	Work experience (Months/Years)
P1	27	Single	Christian	Female	2 months
P2	37	Single	Christian	Male	9 years
P3	25	Single	Christian	Female	16 months
P4	25	Single	Christian	Female	1 year
P5	27	Single	Muslim	Female	2 years
P6	30	Married	Christian	Male	2 years
P7	35	Married	Christian	Female	13 years
P8	35	Single	Christian	Male	7.5 years
P9	35	Single	Christian	Female	8 years

Source: Field data (2023)

3.9 Inclusion and exclusion criteria

The inclusion and exclusion criteria for participants of the study include:

3.9.1 Inclusion criteria

- a. Parents of children living with ASD aged between 6-18 that attend any of the two research sites.

- b. Special education teachers that use ABA in teaching children living with ASD in any of the two research sites.
- c. Special education teachers that have undergone ABA training and have been practicing for more than a year.

3.9.2 Exclusion criteria

- a. Mainstream or general schoolteachers.
- b. Guardians of children with ASD.
- c. Parents of children with other learning disabilities at either of the research sites.

3.10 Data collection instrument

Semi-structured interview guide

In this study, an interview guide was the instrument used to collect data. According to George (2022) an interview is a type of research method that asks questions to collect data. An interview usually involves two or more people, where one is the interviewer asking questions. George (2022) noted that semi-structured interviews are a blend of structured and unstructured interviews, where the researcher does not necessarily have to follow order, they are often open ended which provides room for flexibility but follows a predetermined thematic framework, giving some form of structure.

Ivan (2021) explains qualitative data as the detailed findings that are collected through interviews, questionnaires, focus groups or observation. After collection of data, analysing the data allows the researcher to explore ideas and give an in-depth explanation of qualitative results.

A two-part semi-structured interview guide was generated based on the objectives of the study. One part was created to help get information from the parents, while the second part was generated to get information from special education teachers. The interview guide

was used to explore the participants' perceptions about the study. Some of the questions asked on the interview guide include "Can you please tell me about your reaction and experience of finding out about your child's diagnosis?" "What do you think about ABA as a teaching intervention for ASD?" "What are some of the benefits you and your child have derived from ABA therapy as an educational intervention?" "Tell me about any training you have received in any specific educational interventions or methods". What are some of the barriers and challenges you have faced in using ABA in meeting the educational needs of children with ASD?" During the interview, probing questions were asked to enrich the data collected.

3.11 Procedure for data collection

A semi-structured interview guide that included probes and open-ended questions was used to conduct in-person interviews as well as telephone interviews. An introductory letter was obtained from the Department of Psychology outlining the purpose and aim of the study. The letter was sent to Autism Compassion Africa and Therakidz. The centres 'authorities granted ethical approval for the study and facilitated the identification of appropriate participants. At the two research sites, interviews conducted were based on the place, time and convenience of the participants. Confidentiality was fully guaranteed by substituting codes for participant identifiers and storing collected data on a secured mobile device, that was only accessible to the principal researcher. Consent forms were gotten from and approved from the Psychology department of the University of Ghana and were given to the participants to obtain their approval. The researcher assured participants that information provided by them will not be shared elsewhere or with others aside supervisors and the university and even that will be given only when requested for. Also, the information they provided was strictly for educational purposes. The interviews conducted lasted about 30 minutes and were audio recorded. A password protected mobile phone was used to collect

data which was only accessible to the principal investigator. Pseudo names and numbers were used to identify participants.

3.12 Ethical considerations

Ethical approval was obtained from Ethics Committee for Humanities of the University of Ghana (ECH 213/ 22-23). An introductory letter was obtained from the Department of Psychology outlining the purpose and aim of the study. The letter was sent to Autism Compassion Africa and Therakidz. Also, a consent form was requested and attached for the interviewing and audio recording of the interviews conducted. The consent form was clear about participation being voluntary with no consequence if they refuse to participate or withdraw from the study. The participants could do withdrawal from the study freely.

Participants were adequately informed of the study's aim and consented before the interviews for the study was conducted. Confidentiality was assured by assigning pseudo names to participants after interview sessions for example P5 for teacher five and PP for parents in the study. A compensation of a bottle of water and a drink was given to participants that engaged in in-person interviews and 5ghc worth of airtime was given to participants that granted telephone interviews.

3.12.1 Trustworthiness

A researcher conducting a qualitative study is required to provide clear evidence of four main criteria to ensure the trustworthiness of the study's findings: credibility, transferability, dependability, and confirmability. Trustworthiness in a study is the degree of confidence in the study's data, interpretation and approaches used to ensure the quality of a study (Polit & Beck, 2014). Outlined below are some measures employed to ensure the trustworthiness of this study.

3.12.2 Credibility: To establish credibility in a study, there are some techniques a researcher uses which include prolonged engagement with participants, persistent observation if appropriate to the study, peer-debriefing, member-checking, and reflective journaling. Evidence should also be presented of continual questioning of the data, returning to examine it several times. Negative case analysis or alternate explanations should be explored as well (Connelly, 2016). In this study, two groups of participants (special education teachers and parents) were interviewed, their interview responses were triangulated to accomplish trustworthiness which lessened by biases.

3.12.3 Transferability: This can be explained as the extent to which findings of a study can be applied and/or generalized to other contexts, settings or populations other than the specific being studied. This is the key aspect of the external validity. In research. Yin (2014) opines that conducting comparative analysis across different cases or settings can help show how important findings may be in different contexts. I explained the background of the study and the sample selection process. Anyone interpreting my work will find this useful in determining which part of the outcome they would like to utilise.

3.12.4 Dependability: This can be defined as the extent in which another researcher can repeat the study, and the findings will be consistent. If the study should be replicated, the other researcher should have enough information from the report to do so and obtain similar findings (Kusi, 2012). In order to achieve dependability in this study, I ensured that I accurately described every step and procedure taken during this study's process which included how data was collected, the instruments used to collect data, coding of data collected and also how analysis of data was done to allow for a reliable audit of the study's procedure.

3.12.5 Confirmability: This is the degree of neutrality in a study's findings, Guba and Lincoln (1985) in their work on naturalistic inquiry and Creswell and Creswell (2017) in

their discussions on research design and qualitative research methods expanded on the significance of maintaining a transparent and neutral stance in qualitative research.

Researchers can, keep track by journaling their procedures which highlights every step of data analysis that was made to provide a rationale for the decisions made. This was accomplished by triangulating the interviews with the participants. The data analysis used verbatim statements for the most part, reflecting participants' perceptions exactly as they expressed them.

3.13 Analysis of data

Responses recorded and transcribed were analysed using interpretative phenomenological analysis (IPA). IPA is a qualitative approach, which aims to provide detailed examinations of personal lived experience (Smith et al., 2009). Researcher read data thoroughly to be familiarized and transcribed texts verbatim and researcher looked out for patterns to generate themes. Themes were connected and clustered. The researcher provided a write up and final statement of meanings from participant's responses. It is important for the researcher to ensure that necessary procedures are established for a study to be considered as worthy by readers (Amankwaa, 2016).

For this study, these were the steps involved in conducting IPA that the researcher used, as outlined by Smith et al. (2009) and Larkin et al. (2006):

Immersion in the Data: To familiarise themselves with the material, researchers read and reread transcripts multiple times (Smith et al., 2009). This allows them to become fully immersed in the data. In this study, after I collected data through semi structured interviews, responses of the participants were transcribed, and the transcribed data collected was read and reread several times to get familiar with the data. This helped me to be fully embodied in the data collected.

Initial Noting: According to Smith et al. (2009), researchers start by taking preliminary notes regarding intriguing aspects of the data, emphasising key events and descriptive details. After becoming familiar with the various scripts, I made initial notes concerning captivating parts of the data, highlighting the major events reported by participants in the study. I noted down possible responses that can be captured as quotations to support main and sub themes derived from the data collected.

Developing Emergent Themes: By grouping early notes into clusters and highlighting similarities and variations between participants' experiences, researchers can find emergent themes (Smith et al., 2009). From the notes made, the researcher then proceeded to generate themes from the clusters made. From the analysis, many possible themes came up, responses that were alike were put together and from them came sub themes. The themes that were generated were responses and experiences from participants included but not limited to the perceptions that participants had about ABA, the barriers that participants have faced by using ABA as an educational intervention for ASD, the knowledge participants about ABA and recommendations made by participants were put together as a theme.

Searching for Connections: To fully convey the complexity of participants' experiences, researchers refine and revise emergent themes as needed while looking for links and patterns both within and between them (Smith et al., 2009; Larkin et al., 2006). As stated earlier, many ideas and possible themes were identified from data collected. From these possible themes, connecting responses and ideas from participants were looked at.

Moving Towards Superordinate Themes: Researchers move towards identifying superordinate themes that encompass broader patterns of meaning across the emergent themes (Smith et al., 2009). After identifying and making notes of several ideas and patterns from the data, main themes were generated from the data, similar patterns and responses were put together and then coined under a major theme. For example, all participants had some

challenges with ABA as an educational intervention, for ASD. With the various responses that were connected to how challenging using ABA can be for ASD from their experiences, their responses were put together under a main theme (Barriers of ABA).

Reviewing and Refining Themes: Researchers critically review and refine the identified themes, ensuring they accurately represent the data and reflect the participants' experiences (Smith et al., 2009; Larkin et al., 2006). For this study, the initial analysis had so many ideas that stood as themes, these ideas were carefully evaluated and enhanced to exactly portray the experiences shared by the participants.

Defining and Naming Themes: The final themes are identified and defined by the researchers, who also give concise explanations and illustrative examples to convey the essence of each theme (Smith et al., 2009; Larkin et al., 2006). From the large number of ideas of suggested themes, I went on to explain what each main theme and subordinate theme meant based on what the data reflected to affirm these explanations, quotations made by participants were included to back my definitions of themes.

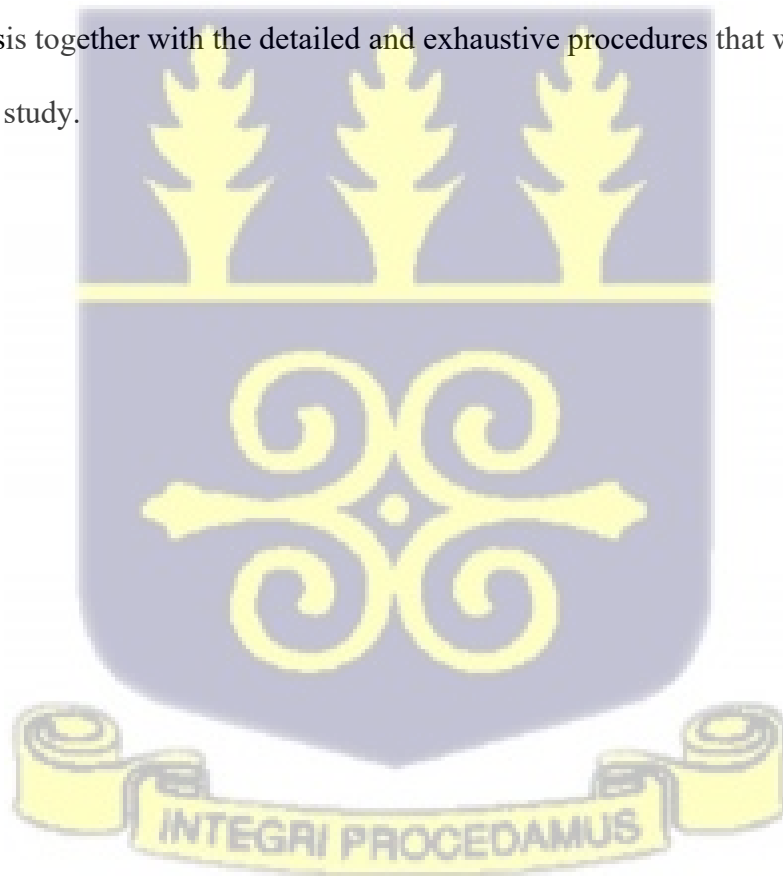
Writing Up: The findings are summarised by researchers, usually in the form of a narrative that highlights the themes found and how important they are to the study topic (Smith et al., 2009). For this study, the results of this study were encapsulated, emphasizing on the themes from the analysis showing its importance to this research.

Member Checking: Researchers may engage in member checking, where participants are invited to review and provide feedback on the interpretations to ensure accuracy and validity (Smith et al., 2009; Larkin et al., 2006). In conducting this research, after transcribing data collected, participants were called to verify the evaluations drawn from their experiences that they shared during the semi-structured interviews that were conducted. Out of the 14 participants, 12 participants were successfully contacted while 2 participants could not be reached.

Peer Debriefing and Reflexivity: Peer debriefing and reflexivity are practices that researchers participate in during the study process. They examine their interpretations with colleagues and consider their own biases and assumptions. (Smith et al., 2009; Larkin et al., 2006).

Evaluations, definitions and analysis I made were presented to some of my colleagues and fellow researchers to scrutinize and cross examine my work, looking out for authenticity with minimal to no bias interference.

Reporting: Finally, researchers report their findings in academic journals, conference presentations, or other scholarly venues, providing a detailed account of the research process, findings, and implications (Smith et al., 2009; Larkin et al., 2006). After doing all this, I put together all my findings for this study, including studies related to my topic that helped in writing this thesis together with the detailed and exhaustive procedures that were involved in conducting this study.



CHAPTER FOUR

RESULTS

4.0 Introduction

This chapter includes the results from data collected and analyzed for this study. Data was collected from nine special education teachers and five parents who have children on the autism spectrum. After analyzing data collected from parents that participated in this study, five main themes and ten subthemes emerged from the transcribed data of parents in this study which included the perception parents had of ABA as an educational intervention, how parents understand or conceptualize ABA approach, challenges encountered by enrolling their children on the ABA program, misconceptions they have about ABA and benefits they have gotten from ABA. The main themes for special education teachers included how special education teachers perceive Applied Behavioral Analysis, their understanding about ABA, the challenges faced in using ABA to cater to the educational needs for children with ASD, the pros of using ABA as an educational intervention and the teaching experiences with ABA for children with ASD.

Table 4

Themes and sub-themes of Parents

Main themes	Sub themes
Perceptions of ABA	Independence Behavior modification
Conception of ABA	ASD learning intervention Cure for ASD
Challenges of ABA	Expensive

	Tedious
Misconceptions about ABA	Coercion
	Suppressive
Benefits of ABA	Stress reliever
	Behavioral intervention

Theme 1. Perceptions of ABA

This theme deals with how parents with children with ASD recognize Applied Behavioral Analysis as an educational intervention for children on the autism spectrum. These perceptions are subjective to each participant. Three subordinate themes were derived from this, they include: independence, behavior modification and learning intervention.

Independence

Being independent is very important and is one of the aims of using ABA as an educational intervention for children living with autism. The goal is to teach the children with the necessary skills to live successfully and independently in and out of the classroom with little to no supervision. Participants' excerpts have been retracted and attached below to describe this.

“It has been great, it’s well-structured and it meets the needs of X(son). It has also made him interact more; there’s some independence there as well. Now he can brush his teeth on his own without making a lot of mess.” (PP1, Female, 37 years).

Behavior modification

This subtheme looks at how challenging and/or undesirable behaviours are handled and changed. The various techniques and strategies of ABA help in controlling challenging

behaviours while reinforcing desirable behaviours as well. A 33- year - old mother confirms this by saying.

“Now too, he actually listens to instructions, he throws less tantrums and with time I really believe he will be fine.”

“I really believe it is; I mean I haven’t had X(son) this cooperative in a long time but when he started this ABA program, everything has been so much better. There are less tantrums now *laughs* we kind of know what we are about now.” (PP1, Female, 37 years).

Theme 2. Conceptions about ABA

This is a main theme that focuses on how parents of children with ASD comprehend the use of ABA as an educational intervention to cater for their children’s educational needs. Two subordinate themes were derived from this, which are ASD as a learning intervention and some parents' understanding of ABA teaching methods as a cure for ASD.

ASD learning intervention

Participants understand that ABA is an educational intervention tailored to address the educational needs of children with ASD and help in managing some challenging behaviours.

A 48-year-old mother shares her opinion by saying

“I know ABA, er to be like er a curriculum that helps to teach the kids that have autism, it’s not like everyday school but it is helping small, small, especially with some of these their behaviour, you know. Their teachers use the ABA to teach them new things. Yes, that’s how I understand it.”

Another mother, aged 37, opines that,

“For ABA, I have come to understand it as a way of learning that teaches new behaviour and rewards the good behaviours. Like when the children do something well, *they* get like a gift or something ahaaan a reward. And this helps them to keep doing that thing and it also helps us to manage their tantrums. So, you see ernh, it’s like let me do the good thing so I can get this...”

Cure for ASD

Some parent participants understand some teaching and learning strategies of ABA that can successfully treat challenging and undesirable behaviours associated with ASD. They are of the view that as ABA modifies the behaviour of the child, it acts a type of cure especially with communication deficits. The extracts below highlights this.

“... as for me, I see ABA as the remedy to my son’s condition oo. It is more like a slow working cure; it’s doing the work bit by bit. My boy’s tantrums have reduced; he hardly rocks or bangs his head nowadays. This is why I’m saying that it is a cure, that how I see the ABA.” (PP4, Male, 40 years).

A 37-year-old mother also reports

“You may think I’m exaggerating but I strongly believe that ABA therapy is a cure, many “bad” behaviours have changed and we’re still learning. I know with time Insha’Allah, everything will turnout for my son’s good.”

Theme 3. Challenges of ABA

This main theme focuses on the challenges that parents encounter using ABA as an educational intervention for their children with ASD. Participants make mention of some barriers they have faced by relying on ABA to cater to their children’s educational needs and

some of these challenges include ABA being expensive and the engagement also being tedious.

Expensive

The cost of enrolling in an institution that uses ABA as educational intervention for children on the spectrum can be costly. The burden of prolonged financial difficulties can be felt by the parents of children on the autism spectrum. Their specialized education, Applied Behavioural Analysis can make a significant impact on the finances of parents of children on the spectrum. This is highlighted in the excerpt below

“The expenses o, hmm it is very expensive considering we have another child too o. The hospital rounds, his school, oh his school fees are very expensive. Yeah, right now, that’s our headache...ABA is very very expensive, to be honest I thought it will be a little more than the regular schools but ei, hmm, it’s a lot and with this school we are paying monthly too so you can imagine.”
(PP4, Male, 40 years).

A 39 – year – old mother describes this below

“D’s (son) school is very expensive; we also must employ a nanny that will take care of him at home because of my work. Then we go for reviews every month too. I’m a single mum; I handle all these alone with no help. After D’s expenses I must take care of bills and other expenses, it’s not easy at all. Also, ABA makes use of technology in teaching and learning, which is good oo, but it also means that you as a parent must be investing in these things for the betterment of your child.”

Tedious

Parents report that being involved in ABA can be tiring as they do not have enough experience with the nature of their children's lessons. It is perceived to be boring as lessons must be repeated a few times. The excerpt below highlights this subtheme

“ABA can sometimes be repetitive and can boring to me, when we go for meetings with the teachers, we're told to keep doing one lesson repeatedly and you know, for a newbie like me *laughs* it was a bit boring and tiring. And with Y, once he has learnt something, when you try to change it a little bit, he gets angry and confused.” (PP2, Female, 33 years).

Theme 4. Misconceptions about ABA

This theme centres on the misinterpretations that parents have about using ABA as an educational intervention for ASD. Some parent participants of this study, misunderstand how ABA works and regard teaching methods and approaches differently from some of the advantages of ABA. These misconceptions expressed by some participants include the use of coercion to develop a desired behaviour, the rigid structure of ABA and the restrictive nature of ABA.

Coercion

The use of rewards to elicit or bring out a desired behaviour is seen as bribery by some parents. In some ABA lessons, a reward is usually presented during lessons to a child with ASD to serve as a form of motivation which drives the child to put in more effort to be rewarded. A 48- year-old mother affirms this by saying

“Oh, the ABA nu it's good oo but you see if you don't give the child something, when you ask her to do something or stop shouting then it becomes a problem. I must bribe her when she throws tantrums or when I want to get her to do the right thing...”

Suppressive

Though parents are impressed with the well-planned nature of ABA lessons for their children with ASD, some parents feel that some lessons restrict and/or restrain their children with ASD. Some participants opined that ABA is primarily focused on teaching what is accepted by society without considering how the child feels about a situation. Below are some excerpts that highlight this.

“... I genuinely feel like some of these lessons puts something like a stopper on my child’s feelings maybe that is why he sometimes throws tantrums. I feel like when the control of behaviour becomes too much for him, he can’t take it then he blurts out. I’m not saying ABA is an entirely bad approach, but it can get a bit restrictive of the children’s true emotions just because we want them to be like everyone else, so they are accepted.” (PP2, Female, 33 years).

“Sometimes the instructions can be too controlling, it makes me worry, but I know it’s for my child’s own good. There is one feeding lesson where she has to keep asking before she can take a bite or drink water, I sometimes see how frustrated she gets, I mean when her siblings are eating, they don’t do that, but her instructor informed me it’s to teach her to ask for things before taking them, I think it’s called manding or so. Hmm, 3y3 asem o.” (PP5, Female, 48 years).

Theme 5. Benefits of ABA

This theme describes the positive outcomes of ABA as an educational intervention that parents have experienced with their children with ASD, two sub themes emerged from this main theme and they are stress reliever and behavioral intervention.

Stress reliever

This theme describes the unwinding feeling that parents experience by using ABA as an educational intervention for children with ASD. Participants view ABA as a destressing tool that takes away some difficulties associated with catering to the educational needs of their children with ASD. These are seen in the extracts below.

“...oh, now we can relax a bit, it is not as bad as before. With ABA now helping with his education my wife and I are not too disturbed about his future, it may not be like his siblings or a regular kid but at least he is learning, and I know when I am gone, he can take care of himself. (PP4, Male, 40 years).

A 48-year-old mother also said.

“My daughter’s condition used to be a big worry to me. Before she enrolled here, I am always concerned about her studies as she did not perform well in her previous school but it’s much better. She can do pretty beadwork and has started learning how to sew. So, I know there is hope for her and it takes that pressure off me.”

Behavioral intervention

This is a sub theme that highlights how ABA has helped participants control and manage behavior associated with ASD. For parents that have difficulty in managing the challenging behaviors exhibited by their children with ASD, ABA techniques taught and helped them control these behaviors properly. The excerpts below affirm this.

“My boy used to bang his head a lot when he’s not having his way, and that bothered me because I did not know how to handle it but since we started at the center and through the training we have during the quarterly meetings it has helped me with managing

the tantrums a lot and nowadays he communicates when he is having trouble doing stuff
.”(PP2, Female, 33 years).

“The parent-teacher meetings we have occasionally helps a lot, the instructors teach we the parents some of the techniques they use in the classroom. So, when we do same at home it maintains what they learnt and this makes life easy, the screaming, has reduced and now he listens to what I say and does what I ask him to do *laughs* sometimes.” (PP4, Male, 40 years).

Table 5
Themes and sub-themes of special education teachers

MAIN THEMES	SUB THEMES
Perceptions of ABA	Independence Behaviour Modification Learning Intervention
Comprehension about ABA	Well-structured Individualized
Challenges of ABA	Cultural barriers Minimal Incorporation Repetitive Expensive Parental Involvement
Pros of ABA	Autonomy Behaviour Management
ABA Teaching Experience	Progressive Challenging

Theme 1. Perceptions of ABA

This theme sheds light on how special education teachers view ABA as an educational intervention for children on the autism spectrum. These perceptions are subjective to each participant. Three sub-theme's themes were derived from this, they include: independence, behavior modification, and learning intervention.

Independence

This sub-theme describes how ABA as educational intervention helps children on the autism spectrum live successfully in the general population with little to no help. It also depicts how children learn basic life skills that they will utilize in their daily activities. From this theme, special education teachers that use ABA as an educational intervention for children on the autism spectrum equip the children with basic life skills that will significantly reduce how frequently they rely on others to live in the general population. This is highlighted in the excerpts below:

“ Okay, the whole idea of ABA is helping the children or the child with autism to live an independent life, that is my understanding of ABA, yeah, or a way of using the therapy to, it's more of like a sign to help them to live a meaningful life or independent life in their various communities, that is, mm, that is my understanding” (P2, Male, 37 years).

“Most of my students can follow instructions, they can do most things by themselves, like going to the washroom, asking for permission, sitting quietly during lessons among things. It gives me so much joy” (P7, Female, 35 years).

Behaviour modification

This subtheme describes how undesirable behaviours exhibited by children on the autism spectrum can be managed and be replaced with desirable ones. Undesirable behaviours such as aggression can be managed and replaced with a more desirable behaviour. Also, in modifying behaviour, desirable behaviours exhibited can be rewarded to help maintain them and increase the chance of it be repeated by the child. The excerpts below highlight this theme.

“... the ABA is applied err applied behaviour analysis, so with this, with them you want to manage their behaviour, to manage their aggression...” (P5, Female, 27 years).

“The techniques we use breaks down instructions so we can get a desired behaviour as a response. We also use reinforcement to target and improve behaviour.” (P9, Female, 35 years).

Learning intervention

This subtheme shows how special education teachers view Applied Behaviour as a learning intervention that attends to the educational needs of children on the autism spectrum. As a learning intervention, ABA teaches the children skills they will need in society, like how to properly communicate and address their challenging behaviours.

“...literature shows that it’s been an effective intervention for teaching children living with autism. I’ve seen children who have learnt skills in communication, living skills have improved, their behaviours, challenging behaviours have been worked on, so

generally ABA has been quite impactful on the children that we work with.” (P6, Male, 30 years).

Theme 2. Comprehension about ABA

This theme borders on the understanding of special education teachers of ABA as an educational intervention for children on the autism spectrum.

One subtheme was derived from this main theme, which is ABA being well-structured.

Well-structured

Many of the participants understand that ABA strategies and lessons are scientifically structured based on studies done. Special education teachers understand that ABA is evidence-based and well-structured to adequately cater to the needs of children with ASD.

The excerpts below highlight this theme.

“Okay, so uhm ABA stands for Applied Behavior Analysis, it is an intervention for children with autism based on the principles of learning and reinforcement, yeah in psychology.” (P6, Male, 30 years).

“Hmm, ABA...ABA, it's good o. basically it is a set of rules or instructions that is focused on behavior changes and how we learn. The techniques we use break down instructions so we can get a desired behavior as a response. We also use reinforcement to target and improve behavior.” (P7, Female, 35 years).

“So, ABA follows guidelines; you can't just do anything and say you're using ABA to teach. There are rules and regulations that guide our lesson choices and even instructions on how to carry out these lessons. ABA is very well structured.” (P1, Female, 27 years).

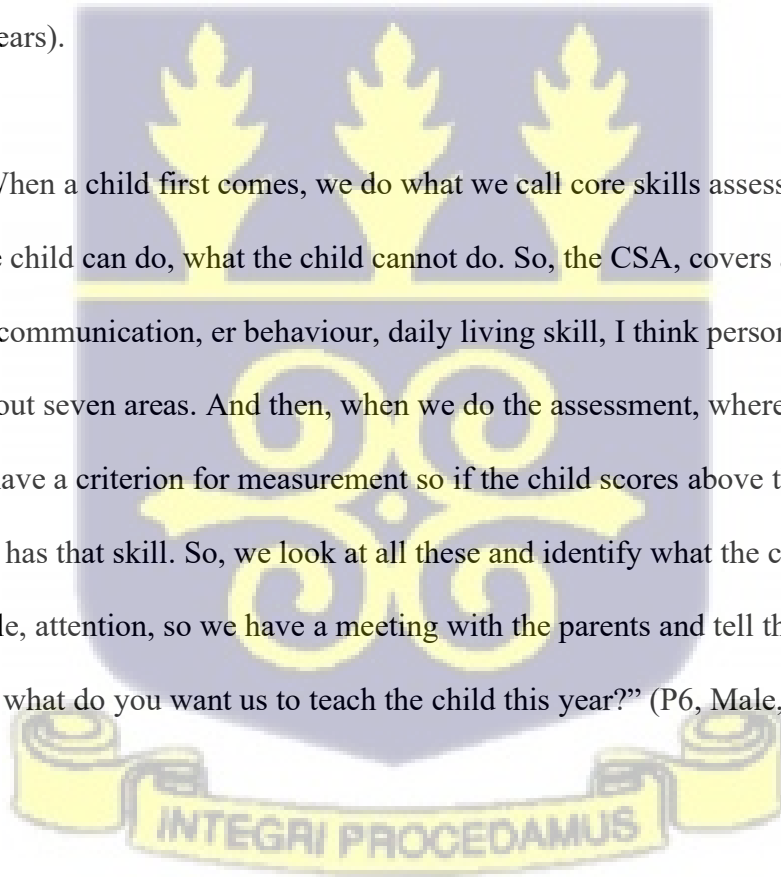
Individualized

This theme describes the personalized composition of ABA techniques and lessons. Special education teachers report that every child with ASD, on an ABA program, has lessons that have been tailored to suit their individual needs. One of the goals of ABA is to adequately cater to the needs of a child with autism, hence the personalized structure of lessons.

Quotations below affirm this theme.

“...you’ll have to do your assessment to see the child’s strengths and weaknesses and based on that you will be able to draw your interventions for each child...”
(P8, Male, 35 years).

“When a child first comes, we do what we call core skills assessment, where we look at what the child can do, what the child cannot do. So, the CSA, covers a variety of areas, it covers communication, er behaviour, daily living skill, I think personal hygiene, a lot, it covers about seven areas. And then, when we do the assessment, where the child scores high, okay we have a criterion for measurement so if the child scores above this level, it means the child has that skill. So, we look at all these and identify what the child doesn’t have for example, attention, so we have a meeting with the parents and tell them okay, these are the goals so what do you want us to teach the child this year?” (P6, Male, 30 years).



Theme 3. Challenges of ABA

There is a significant number of advantages that ABA has helped in catering to the needs of children with ASD; however, there are also some challenges and barriers that special

education teachers deal with when rolling out ABA programs and lessons. Some of these challenges include cultural barriers, minimal incorporation, lessons being repetitive, ABA being an expensive mode of teaching and the issue of parental involvement.

Cultural barrier

With ABA being a foreign tool and intervention, some of the lessons can be a bit challenging to run as it does not exactly fit into our Ghanaian background. Sometimes the interpretations of some instructions may be different based on cultures and norms. In line with this, a 37 – year – old male participant said the following

“...sometimes some of the programs you have to do some modifications so that they suit our Ghanaian context, so sometimes that is some, one of the challenges.”

“People say ABA is a foreign training. How do we localize it? There are some elements that we can redefine; we can modify to suit our cultural settings. We can look at a study, using a local language with ABA for the child and see if the child will understand better.” (P6, Male, 30 years).

Minimal incorporation

ABA focuses more on reinforcing behaviours to live successfully in society. However, after acquiring these skills and behaviours one must also be able to perform other duties for sustainability. A female participant mentions that children currently enrolled in ABA lessons are not taught other skills aside the basic life skills, she suggests that is not enough by saying.

“...we don’t teach vocational skills; we don’t teach some key things. With ABA we always expect that the children will get better with time, and they’ll just find themselves in the normal environment, but it doesn’t always happen like that. So, it’s

like is there a better way so we can find/integrate vocational skill training or recreational skill training.” (P3, Female, 25 years).

Repetitive

The lessons, skills and techniques of ABA can sometimes be monotonous. This usually occurs because the child may not have fully mastered the skill set being taught. However, when this continues lessons can become tedious. The excerpts below affirm these statements.

“With the ABA, sometimes it’s kind of like, tsw like it’s repetitive. Like bebiaa do this. Do this, sometimes the kids too na waa br3 but wontumi sisan nu...” (P4, Female, 25 years).

“... sometimes it gets tiring and can be boring as well.” (P7, Female, 35 years).

Another participant also says

“Challenges, hmm you know...ABA is tedious. The therapy has to be fun, it’s not like other therapies, ABA you have to put a lot of energy into it, you have to make the working fun for the child, you can imagine doing the same thing for four hours, 5hrs, 6hrs, here we came to work for 8hrs so you can see that it’s monotonous and can be very tiring.” (P6, Female, 30 years).

Expensive

The cost of enrolling in an institution that uses ABA as educational intervention for children on the spectrum can be costly. The expense is also felt by the institutions as well, in the

sense that the appropriate infrastructure and technology must be available to effectively roll out ABA programs. The following statements made by some participants describes this theme.

“ Another thing is, err this one it’s at the organizational level, a job like this should pay but then you realize that the organization may not have, because they have to import or buy iPad for teaching, maybe it’s an NGO, most parents don’t pay, you’ll realize that most will not be able to pay that much but we also understand. I’ll say that ABA is expensive...” (P8, Female, 35 years).

Parental involvement

Special education teachers in the current study reported on how challenging it can in getting parents involved in their children’s ABA programs, this is usually because of their busy schedules which makes it somewhat difficult to regularly be a part of the lessons. The excerpts below confirm this.

“There has always been difficult for us you know a big challenge, involving parents in the ABA therapy process, you know.” (P8, Female, 35 years).

“This can be a difficult sometimes, because the parents may not be available due to their busy work schedules.” (P7, Female, 35 years).

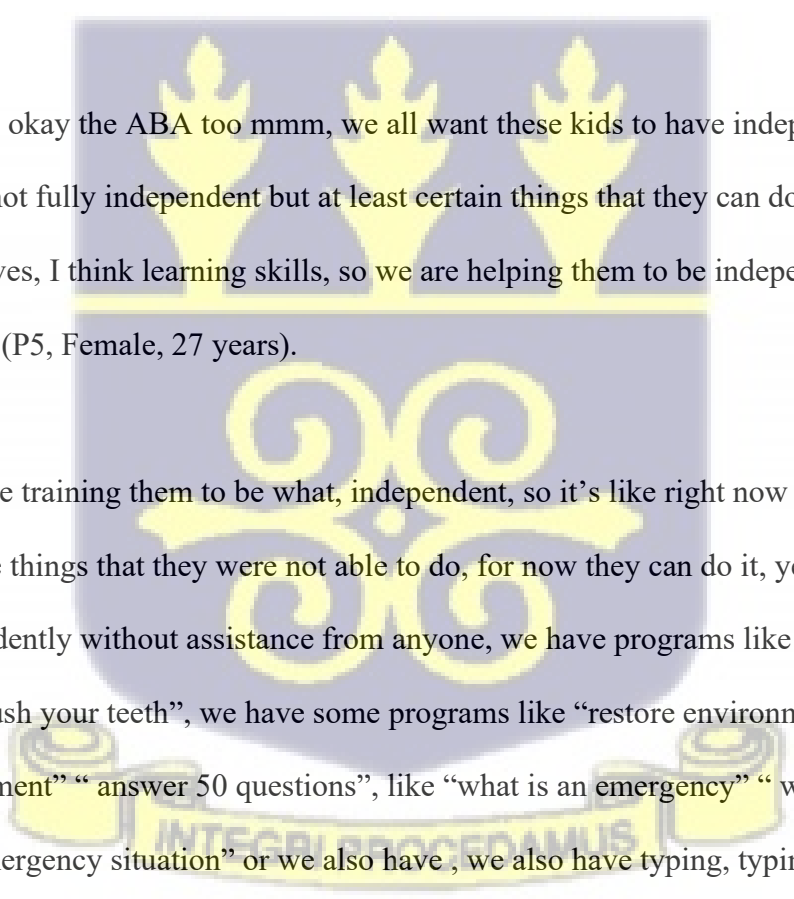
“Mmm, so with parental involvement some parents don’t have time but if they can dedicate some time to observe their child in a session to know the program of the child so when they go home, they can also employ those ones.” (P3, Female, 25 years).

Theme 4. Pros of ABA

One of the main themes that emerged from the study is the benefits of ABA as a teaching and learning intervention for children on the autism spectrum. Three subthemes materialized and they include autonomy, behaviour management and functional application.

Autonomy

When special education teachers use the ABA approach as an educational intervention for ASD, it helps the children become self-reliant over time. They may require assistance in certain aspects however, lessons taught equip them with basic skills which can help them perform most daily activities independently. This is confirmed by the following extracts.



“Oh, okay the ABA too mmm, we all want these kids to have independent life even if not fully independent but at least certain things that they can do for themselves, I think learning skills, so we are helping them to be independent in that aspect”. (P5, Female, 27 years).

“...we are training them to be what, independent, so it’s like right now for some of them the things that they were not able to do, for now they can do it, yeah independently without assistance from anyone, we have programs like “put on shirt”, like “brush your teeth”, we have some programs like “restore environment, restore environment” “ answer 50 questions”, like “what is an emergency” “ who do you call in an emergency situation” or we also have , we also have typing, typing as a program for some of the children or some of the students we have “lacing , lacing of shoe” and most of the children here, I will take Pascal as an example, he has mastered most of

his programs and we can now do most of his program independently...”(P2, Male, 37 years).

Behaviour management

Special education teachers use techniques and strategies of ABA to control the challenging and/or undesirable behaviours associated with ASD. Such techniques help special education teachers teach and replace difficult behaviours, and this helps them to somewhat thrive successfully in society. A 25-year-old female special education teacher confirms this by saying

“...we know that people living with autism they have like a lot of behavioural challenges, so the ABA tackles those areas and finds a better way of helping the kids evolve or get better in the world.”

Theme 5. ABA teaching experience

The experiences special education teachers have when utilising ABA as an educational intervention for children with ASD are discussed in this primary theme. There were two sub themes that emerged from this major theme which are ABA teaching experiences being progressive for some and challenging for others.

Progressive

This theme highlights how some special education teachers reported their teaching experiences while using ABA techniques as an educational intervention for ASD. Some special education teachers described their teaching experiences as continuous and developing. The excerpts below affirm this.

“Yes so, they have, there are lots, lots to share, I remember when I came, eating was difficult, he doesn’t eat independently but through the intervention we were able to train him to eat independently. Some of the kids were not walking, two kids were not walking but they came to walk here. Okay sometimes we get assistance from a speech therapist but most of the work we do it. Some children, their tantrums were on the high, but we’ve worked on them, and it has come down, so, all these things will make you feel good because the I feel the work, I’m doing is giving out a good impact. When you’re working and you’re seeing results, it’s a good feeling.” (P6, Male, 30 years).

“It has been a good experience, after all these years I must say ABA has been truly effective, with regards to behaviour modification, communication skills and being able to do most basic life skills. It has been beautiful watching the children progress in their programs which is also reflecting in their lives in the general environment.” (P8, Female, 35 years).

A 35-year-old special education teacher also confirms this by saying

“To be honest, it has been amazing. You know, seeing these kids coming in with difficult behaviours and over the course of a few months the positive change in behaviour is extremely heartwarming.”

A 25-year-old female special education teacher also reports saying,

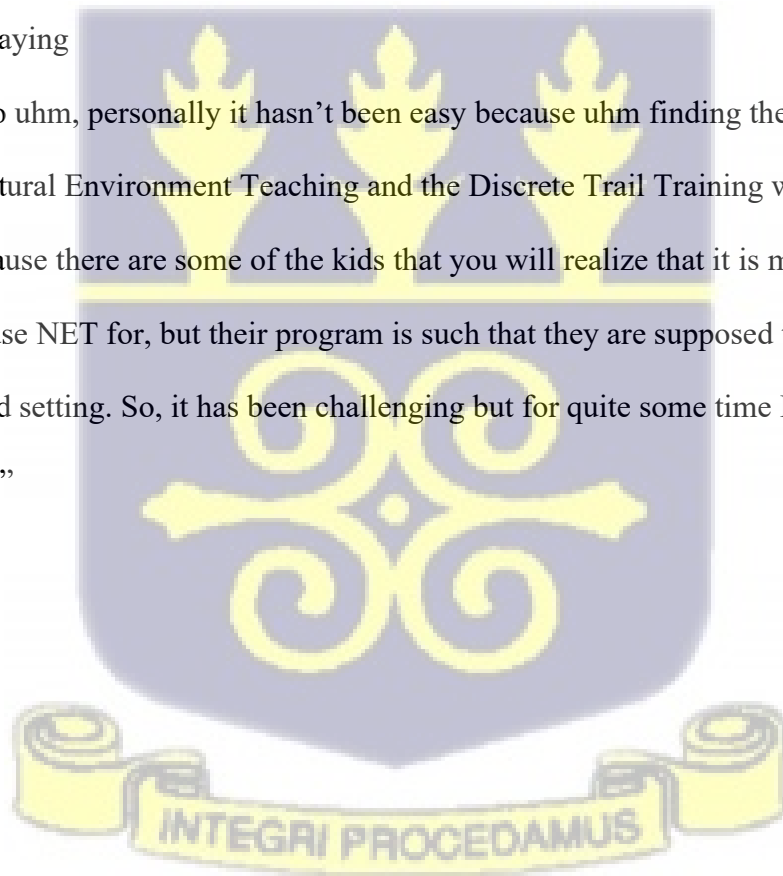
“Mmm, okay so uhm my time with special kids has been good but for starters I was a bit surprised to see some of the things I saw. Most especially uhm with the older kids. So, when I saw them, I realized that autism goes beyond the young ones that I have experienced for a long while, that was when I to Autism Awareness Centre. At AAC,

I got to experience older kids who have challenging behaviours...I realized that dealing with kids or people with autism is different for each person that you work with or encounter. They all have different behaviours that they put up, though it comes as they all have tantrums, their tantrums are different, so it is like you'd always have to be learning, preparing for them each time."

Challenging

This main theme centres on difficulties that some participants did encounter while using ABA as an educational intervention for ASD. Some lessons are similar and distinguishing them became a little difficult. A 25-year-old female special education teacher reports her experience by saying

"Okay so uhm, personally it hasn't been easy because uhm finding the difference between the Natural Environment Teaching and the Discrete Trail Training was quite confusing. Because there are some of the kids that you will realize that it is much more appropriate to use NET for, but their program is such that they are supposed to do whatever it is in a structured setting. So, it has been challenging but for quite some time I've gotten a better grip of it."



CHAPTER FIVE

DISCUSSION

In this chapter, findings of this study are discussed and related to existing literature. In addition to the researcher's reflective journaling, the data analysis process involved numerous rounds of coding that included expert and member reviews. This study aimed to explore the perceptions of parents and special needs teachers regarding Applied Behavioural Analysis as an educational intervention for children with autism spectrum disorders. The current study sought to explore the perceptions of parents and teachers of children with ASD on ABA as an educational intervention.

5.1 Perceptions of Applied Behaviour Analysis (ABA)

The first objective highlights the perceptions that parents and special education teachers have about ABA, this is also captured as a main theme derived from both groups of participants of this study. From the analysis, parents perceive ABA as a learning approach that equips children with basic life skills to become self-reliant. This is consistent with findings from a study titled *Parents' perception of the effect of Early Intensive Behavioural Intervention for children with autism* that was conducted by Giambona et al. (2023), which reports that parents specifically mentioned that ABA therapies helped their child's adaptive abilities grow and develop. Teaching everyday living skills including meal preparation, personal cleanliness, and domestic tasks is a successful use of ABA. This is in line with the perceived behavioural control which explains a belief in one's ability to successfully perform a behaviour, under the theory of planned behaviour which is a goal of ABA. Gaining more independence requires these abilities. This is consistent with findings of Bondy, Krantz & McGee, (1985), study on teaching daily skills to children with ASD.

Regarding behaviour modification, both parents and special education teachers perceive ABA as an educational tool that helps with challenging behaviours, teaching new behaviours and ways of maintaining such desirable behaviours. As evidenced by recent studies, ABA therapies can successfully teach adaptive skills and lessen these behaviours. Teaching and learning are affected by the social learning theory; in fact, "modelling is seen as one of the key factors in the development of prosocial behaviour" and takes place in educational institutions, businesses, and families (Davies, 2013). Special education teachers can use the social learning theory to better understand how certain behaviours have evolved and how to offer encouragement or serve as role models to others.

5.2 Knowledge about ABA

The second objective was the knowledge that parents, and special education teachers have of applied behavioural analysis as an educational intervention for ASD. The study results show that parents understand that ABA is a learning intervention for ASD. This is consistent with the findings of Andreadi et al. (2018) who found out that ABA is structured, with well-planned programs used in teaching children with ASD and when these programs are properly implemented it helps to improve a child's communication. ABA is seen by many parents as a very successful intervention for enhancing their child's skills and behaviour. They usually value its methodical approach and findings that are supported by evidence. This view is consistent with a study by Smith & Ladarola (2015) that ABA is a well-structured and evidence-based method of teaching children with ASD.

5.3 Challenges associated with ABA

The third objective sought to explore the challenges that special education teachers and parents have faced by using ABA as an educational intervention for children with ASD. Some of these challenges are in line with findings from Buescher et al. (2014), who studied

the cost parents must bear because they have children with ASD. ABA can be expensive, and the cost can be a burden for parents especially as there is little to no assistance from the government. Another challenge parents face with ABA is how tedious programs and lessons can get. Dillenburger et al. (2015) in a study drew results that showed that for parents, putting ABA therapy into practice can be an extremely draining task. This include managing behavioural issues, enduring the demands of therapy, and managing the stress of watching their child go through treatment.

With special education teachers however, they face challenges that include cultural barriers, minimal incorporation, ABA being monotonous, ABA being expensive and parental involvement. With parental involvement, results are consistent with Dunlap, Koegel & Koegel (1996), study that looked at identifying and improving social deficits of people with ASD where results show that engaging parents in ABA programs is essential and significant however, it can be challenging to ensure parents' consistent involvement and support. These difficulties emphasise how crucial it is to apply ABA therapy with a knowledgeable and supportive approach to address such problems and make therapy as beneficial and successful as possible for the child and the family, parents, therapists, and other professionals must work together. Hernandez et al. (2023) discussed culture and language inclusion when using ABA. Results from this study showed that it is necessary to consider people's culture and the language they are fluent in, in the provision of services and provide any necessary linguistic modifications. It further emphasizes that ABA experts must consider and fairly evaluate the full identity of a child with ASD before providing services that are informed by cultural and linguistic issues.

5.4 Misconceptions of ABA

Anderson & Carr (2021) report that there are doubts and misinterpretations about the use of ABA as an educational intervention for ASD. This was a theme that emerged after analysing

transcribed data of parents in this study. This theme focused on the misinterpretation that participants reported concerning ABA as an educational intervention for ASD. Two subthemes highlighted how parents misunderstand the methods of ABA and this included coercion and the suppressive nature of ABA: ABA using compelling techniques to elicit desirable behaviours and ABA being restrictive. This is consistent with findings of Van Rensburg (2020) he stated in his study which mentioned some misconceptions parents in Ontario had about ABA. These included but not limited to ABA turning children into robots, employing bribes to encourage good behaviour, saying no all the time, and all ABA programs being the same.

5.5 Pros of ABA

In this study, both groups of participants (parents and special education teachers) reported benefits that they enjoy by using ABA therapy as an educational intervention for ASD. The benefits mentioned include ABA taking some burden off parents of children with autism, and also ABA helping parents handle the challenging behaviours their children with ASD may exhibit. These are consistent with the literature (Curley et al., 2023) which talked about stress reduction interventions for parents of children with ASD, the results demonstrated that ABA interventions are effective in lowering parenting stress due to a decrease in maladaptive behaviour; nonetheless, it appears that a parent's capacity to affect behavioural changes in their child is a major factor in its success. For special education teachers, the pros of ABA include independence and behaviour management. Behaviour management as a benefit of ABA is consistent with Ringdahl et al. (2023) findings that explained ABA as an effective strategy used to assess, control and handle difficult behaviours associated with ASD.

5.6 ABA teaching experiences

This discusses the various experiences that special education teachers have by employing ABA strategies and methods as an educational intervention for ASD. The findings show that while some special education teachers have progressive and developing experiences there are others that are having some difficulty rolling out ABA lessons that cater to the educational needs of children with ASD. Kingsdorf et al. (2022) study findings on the experiences of trainers and caregivers of children with autism are consistent with the challenging experience that were faced by some participants in this study. Kingsdorf et al. (2022) results demonstrate it is possible that trainers' university degrees did not adequately prepare them to address the needs of children with autism. In the study, the Czech trainers were more knowledgeable about all ABA ideas than the North Macedonian trainers, but the low percentage indicates that more training is necessary, particularly in proactive methods.

The Theory of Planned Behaviour (TPB) and Social Learning Theory (SLT) both provide a useful framework for understanding and guiding Applied Behaviour Analysis (ABA) interventions in children with autism. TPB explains that a child's behaviour can be influenced by their attitudes toward the behaviour, the social expectations around them, and their perceived ability to perform the behaviour. ABA techniques, such as reinforcement and shaping, can strengthen positive attitudes and enhance perceived behavioural control, while involving parents and peers addresses social norms.

Similarly, SLT emphasizes learning through observation, imitation, and reinforcement. ABA utilizes modelling, prompting, and rewards to help children acquire and maintain desired behaviours by observing therapists or peers, practicing the behaviours, and receiving reinforcement. Together, these theories support the design of

ABA interventions that are socially informed, motivational, and effective in teaching adaptive and social skills.

5.7 Implication for policy and practice

Parents of children with ASD, special education teachers, policy makers and practitioners can learn and understand more about utilizing ABA as an educational intervention for ASD from the implications of this study. The GoG should help in catering to the educational needs of children with ASD by taking steps and measures to establish more well-equipped special schools with well trained personnel to effectively teach children on the autism spectrum using ABA. For the increasing number of children with ASD, there are not enough special schools that use ABA guidelines in the country.

In order to get a better understanding of the problem, this study should be repeated on a broader scale with parents whose children do not attend special schools, parents from different educational, socioeconomic, and religious backgrounds, which could improve its transferability and provide a more comprehensive picture of the population. To assist families in lessening the financial strain of caring for children with ASD, the government should offer financial support.

5.8 Limitations and Recommendations

The major limitation of this study was the hesitation and unwillingness of parents to participate in the study. Many parents claimed that they had very busy schedules and could not make time to be interviewed. Some parents did not respond at all.

The study was conducted in two special schools that use ABA as an educational intervention for children with ASD.

Another limitation was the use of a relatively convenient small sample; hence results cannot be generalized to a larger population.

Considering the results of this investigation, the following recommendations were suggested. Special education teachers who participated in this study agree that the prevalence of autism spectrum disorder dialogue should be promoted. Creating awareness-centred ASD and ABA educational intervention was another suggestion that was recommended by parents who participated in the study. To ensure active autism and ABA awareness creation, the Ministry of Education and the Special Education Division of the GES should develop a national ASD and ABA communication plan, including radio campaigns, community workshops, and school-based sensitization programs.

They believe that when there is more attention, appropriate systems may be put in place to adequately attend to the educational needs of children living with autism. Also, promoting the use of ABA techniques as an effective approach in attending to the educational needs of children living with autism will be appropriate and effective.

Parents of children with ASD and special education teachers suggest especially to the educational sector of the Government of Ghana (GoG), citing a couple of issues that the GoG can help with in the facilitation of using ABA techniques and strategies as one of the main educational interventions used in catering to the educational needs of children with ASD in the country. Suggestions and recommendations made by the parents and teachers include early screening and referral procedures between preschools, basic schools, and ABA service providers should be standardized, the wavering of ABA fees, establishing parent support groups that may organize pooled resources to help families access ABA sessions more regularly. Also, schools serving children with ASD can partner with accredited ABA providers to offer on-site sessions at reduced cost.

The allocation of funds and resources geared towards ABA education and the appropriate training of ABA techniques to properly implement and effectively teach or

address the educational needs of children on the spectrum. Schools should create designated structured learning spaces and acquire basic ABA materials such as visual schedules, reinforcement tools, communication aids, and data-tracking sheets. Additionally, teachers can adopt low-cost ABA strategies (task analysis, reinforcement systems, prompting) using locally available materials. Schools should create designated structured learning spaces and acquire basic ABA materials such as visual schedules, reinforcement tools, communication aids, and data-tracking sheets.

Lastly, special education teachers can develop simple information briefs or visual guides to help families understand ABA strategies they can use at home.

These recommendations convert stakeholder perspectives into implementable strategies that can shape practice and policy. When adopted, they can increase ABA availability, improve teacher expertise, and promote better educational outcomes for children with ASD in Ghana.

5.9 Conclusion

The study explored the perceptions that parents and special education teachers have about ABA as an educational intervention for children with ASD in Ghana, how both groups understand the concept of ABA, and the benefits each group derived from using ABA as an educational intervention for children with ASD. The study also looked at challenges that both parents and special education teachers face in using ABA as an educational intervention for children with ASD. Additionally, the study highlighted misconceptions that parents had about ABA.

In conclusion, the study reports that most of the participants agree that applied behavioural analysis is an appropriate educational intervention for children on the autism spectrum in

Ghana; thus, ABA should be sufficiently funded by the Government of Ghana and popularized as an appropriate educational intervention for children with ASD.



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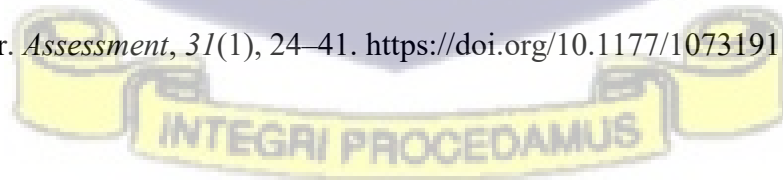
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APPENDIX A: Interview Guide

INTERVIEW GUIDE

PARENTS

Demographic Information

1. Age:
2. Age of child:
3. Would you describe your child's autism disorder at this point in time as mild, moderate, or severe?
4. Gender of child.
5. Employment status:
6. Religious affiliation
7. Marital status:

1. Tell me about your journey and experience as a parent of a child with autism in the family.

Probe: What has been the challenge in caring for your child?

- What are your concerns about your child currently?
- How has raising your child with autism affected your family?

2. Can you please tell me about your reaction and experience of finding out about your child's diagnosis?

Probe: How old was your child when he/she got the diagnosis?

3. Which of the behaviors exhibited by the child affects your family the most?

Probe: What have you been doing to manage or modify the behavior?

- What strategies have you found to be effective for managing your child's challenging behavior?
4. What support have you received since the birth of your child?
- Probe: What types of supports are available to you? E.g., family, parent groups, religious group, social media networks?
- How reliable are these support systems and what is the impact on you and your child?
5. Does your child participate in a special education class, inclusion classroom, part-time resource room, or some combination of these?
- Probe: Does your child receive any related services (speech/language therapy, occupational therapy; physical therapy)? Other supports?
6. What has been your experience with the education system and obtaining appropriate education for your child?
- Probe: What are the challenges or barriers that parents and teachers face in meeting the educational needs of children with ASD?
7. What are your perceptions about the use of ABA therapy for your child?
- Probe: What are the positives and negatives about using ABA to meet the educational needs of your child having a child with DD?
8. What do you know about the types of ABA therapy?
- Probe: Which types of ABA strategies have been most effective for your child?
9. Have you been involved in the ABA therapy process with your child?
- Probe: If yes, how was the experience for you? If no, why have you not been involved?
10. How has the ABA therapy impacted your child's education and development?

Probe: What are some of the benefits you and your child have derived from ABA therapy as an educational intervention?

- What are some of the barriers and challenges you have faced with ABA therapy in meeting the educational needs of your child?

11. How would you describe your relationship with your child's special education teacher?

Probe: In what ways does that relationship affect how your child's educational needs are met?

- In what ways does that relationship affect how your child's needs are met?
- What do you want most from your child's teachers?

12. What have been your experiences in working with your child at home on ABA goals or carrying out specific methods used at school?

Probe: If you could change anything about educational programs and services for children with ASD, what would be different?

13. Tell me about some of your most memorable experiences with teachers and school staff in planning or implementing your child's educational program.

14. What recommendations would you give to other parents who are considering using ABA therapy as an educational intervention for their children with ASD?



TEACHERS

Demographic Information

Age:

Religious affiliation:

Marital status:

1. Tell me a little about your experience as a special education teacher:

Probe: How many years have you taught children with ASD?

How have you received most of your knowledge and training in how to teach children with ASD?

1. Tell me about any training you have received in any specific educational interventions or methods.

Probe: What specific educational programs and teaching methods have you used with children with autism disorders during your career since entering this school system.

2. What is your motivation for becoming a special education teacher?

Probe: How long have you been in the special education system?

3. Have you received any specialized training or professional development related to the use of ABA therapy in the classroom?

Probe: What are the important components of ABA as an educational intervention program for children with ASD?

4. What is your experience with using ABA as an educational intervention for children with ASD?

Probe: How have you integrated ABA techniques into your teaching strategies and lesson plans?

How do you individualize interventions for each child with ASD, considering their unique needs and abilities?

5. What are some of the barriers and challenges you have faced in using ABA in meeting the educational needs of children with ASD?

6. What are your perceptions about the use of ABA therapy for children with ASD?

Probe: What are the positives and negatives about using ABA to meet the educational needs of a child with ASD?

- What are your concerns about the use of ABA therapy in the classroom?

7. How do you involve parents in the ABA therapy process with their child?

Probe: How do you work with parents and ABA therapists to ensure that interventions are consistent and effective?

8. How would you describe your relationship with parents of students with ASD?

Probe: What do you want most from parents?

10. How would you describe your relationship with general education teachers with whom you work in teaching students with ASD?

Probe: What do you want most from general education teachers?

11. Tell me about some of your most memorable experiences with parents, general education teachers, and other school staff in planning or implementing educational programs for children with ASD.

Probe: Tell me about any experiences you have had in helping parents carry out specific educational methods or practices used at school in the home setting.

12. What would you like to change about the ABA therapy as an educational intervention program. What should be different?

13. Have you used other types of interventions and found it effective for teaching students with autism? If you have, what are they?

14. What recommendations would you give to policy makers and parents on ABA therapy as an educational intervention for their children with ASD?



APPENDIX B: Ethical Clearance



UNIVERSITY OF GHANA

ETHICS COMMITTEE FOR THE HUMANITIES (ECH)

P. O. Box LG 74, Legon, Accra, Ghana

My Ref. No: ECH 213/ 22-23.

July 13,
2023

Joana Annoiwa Quarcoo
Department of Psychology
University of Ghana Legon

**ETHICAL CLEARANCE
(213/22-23)**

The Ethics Committee for the Humanities (ECH) conducted a full board review and approved your protocol titled:

EXPLORING THE PERCEPTIONS OF PARENTS AND SPECIAL NEEDS TEACHERS REGARDING APPLIED BEHAVIOURAL ANALYSIS AS AN EDUCATIONAL INTERVENTION FOR CHILDREN WITH AUTISM SPECTRUM DISORDERS IN GHANA

PRINCIPAL INVESTIGATOR: JOANA ANNOIWA QUARCOO

Please note that the final review report must be submitted to the Committee at the completion of the study. Your research records may be audited at any time during or after the implementation. Any modification of this research project must be submitted to ECH for review and approval prior to implementation.

Please report all serious adverse events related to this study to ECH within seven (7) days verbally and in writing within fourteen (14) days.

This certificate is valid until July 12, 2024. You are required to submit annual reports for continuing review.

Please accept my congratulations.

Yours Sincerely,

Professor C. Charles Mate-Kole

ECH Chair

Cc: Dr. Mabel Oti-Boadi, Department of
Psychology, UG Dr. Enoch Dotse,



APPENDIX C: Consent form
UNIVERSITY OF GHANA



Official Use only Protocol number 213/22-23

Ethics Committee for Humanities (ECH)

PROTOCOL CONSENT FORM

Section A- BACKGROUND INFORMATION

Title of Study:	Exploring the Perceptions of Parents and Special. Needs Teachers regarding Applied Behavioral Analysis as an Educational Intervention for Children with Autism Spectrum Disorders in Ghana.
Principal Investigator:	Joana Annoiwa Quarcoo
Certified Protocol Number	213/22-23

Section B- CONSENT TO PARTICIPATE IN RESEARCH

General Information about Research

This study seeks to explore how parents and special needs teachers perceive Applied Behavioural Analysis as a teaching intervention for children with autism spectrum disorders. Applied Behavioural Analysis is a scientific approach to understanding behavior and it focuses on how behaviour changes and how learning takes place, the goal of this approach is to increase helpful behaviours and decrease that are harmful and may affect learning.

This study will take about 20 to 30 minutes of your time.

If you agree to be part of the study, you will be asked a few questions that will be seeking to find out what you think about the use of Applied Behavioral Analysis as an educational intervention for children on the autism spectrum.

You can decide to have this semi structured interview in-person or through a telephone call depending on what works best for you.

Benefits/Risks of the study

Your participation in this study will help improve knowledge about applied behavioral analysis as an education intervention for children on the autism spectrum and the findings may serve as a source of information for practitioners like psychologists to help in behavior management and learning and policy makers to appropriately restructure and modify the educational system to adequately cater for the educational needs for children on the autism

spectrum. There are minimal risks associated with your participation in this study. I will take every precaution to ensure and maintain your safety and confidentiality.

Confidentiality

All information collected in this study would be treated with utmost confidentiality and will not be shared with anyone apart from my supervisors supervising me to do this work. I will not include any identifying information in the data collection phase.

Compensation

Participants that will participate in the in-person sessions will be compensated with a bottle of water and a bottle of juice; participants that will participate through phone calls will be compensated with 5.00 Ghana cedis airtime. Participants who do not complete the interview sessions will not be compensated.

Withdrawal from Study

Participation in this study is voluntary and participants can withdraw at any time without any consequences. If you feel uncomfortable and become disinterested in the study, you can withdraw or decline to continue to participate in this research.

Contact for Additional Information

If you need further information about this research or need to contact someone about this research, please do not hesitate to contact me.

Joana Annoiwa Quarcoo; Department of Psychology, University of Ghana, Legon;
jaquarcoo000@st.ug.edu.gh; Tel: +233 556980751

- If you have any questions about your rights as a research participant in this study you may contact the Administrator of the Ethics Committee for Humanities, ISSER, University of Ghana at ech@ug.edu.gh or 00233- 303-933-866.

Section C- PARTICIPANT
AGREEMENT

"I have read or have had someone read all of the above, asked questions, received answers regarding participation in this study, and am willing to give consent for me, my child/ward to participate in this study. I will not have waived any of my rights by signing this consent form. Upon signing this consent form, I will receive a copy for my personal records."

Name of Participant

Signature or mark of Participant

Date

If participant cannot read and or understand the form themselves, a witness must sign here:

I was present while the benefits, risks and procedures were read to the volunteer. All questions were answered, and the volunteer has agreed to take part in the research.

Name of witness

Signature of witness / Mark

Date

I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual.

Name of Person who Obtained Consent

Signature of Person Who Obtained Consent

Date



APPENDIX D: Work Plan

Work Plan

	Activity	Period	Duration
1.	Visiting the research sites to be introduced and meet with the heads of institutions.	15 th May 2023 to 19 th May 2023.	One week
2.	Identification and recruitment of participants	July 2023	Two weeks
3.	Data collection	July 2023 to August 2023	Six weeks
4.	Data entry and analysis	September 2023	Four weeks
5.	Thesis report	October 2023	Two weeks
6.	Preparation and submission of thesis	November 2023	Four weeks

