

UNIVERSITY OF CAPE COAST



PREVALENCE OF IMPULSIVITY AMONG PRIMARY SCHOOL
CHILDREN AND ITS INFLUENCE ON ACADEMIC PERFORMANCE

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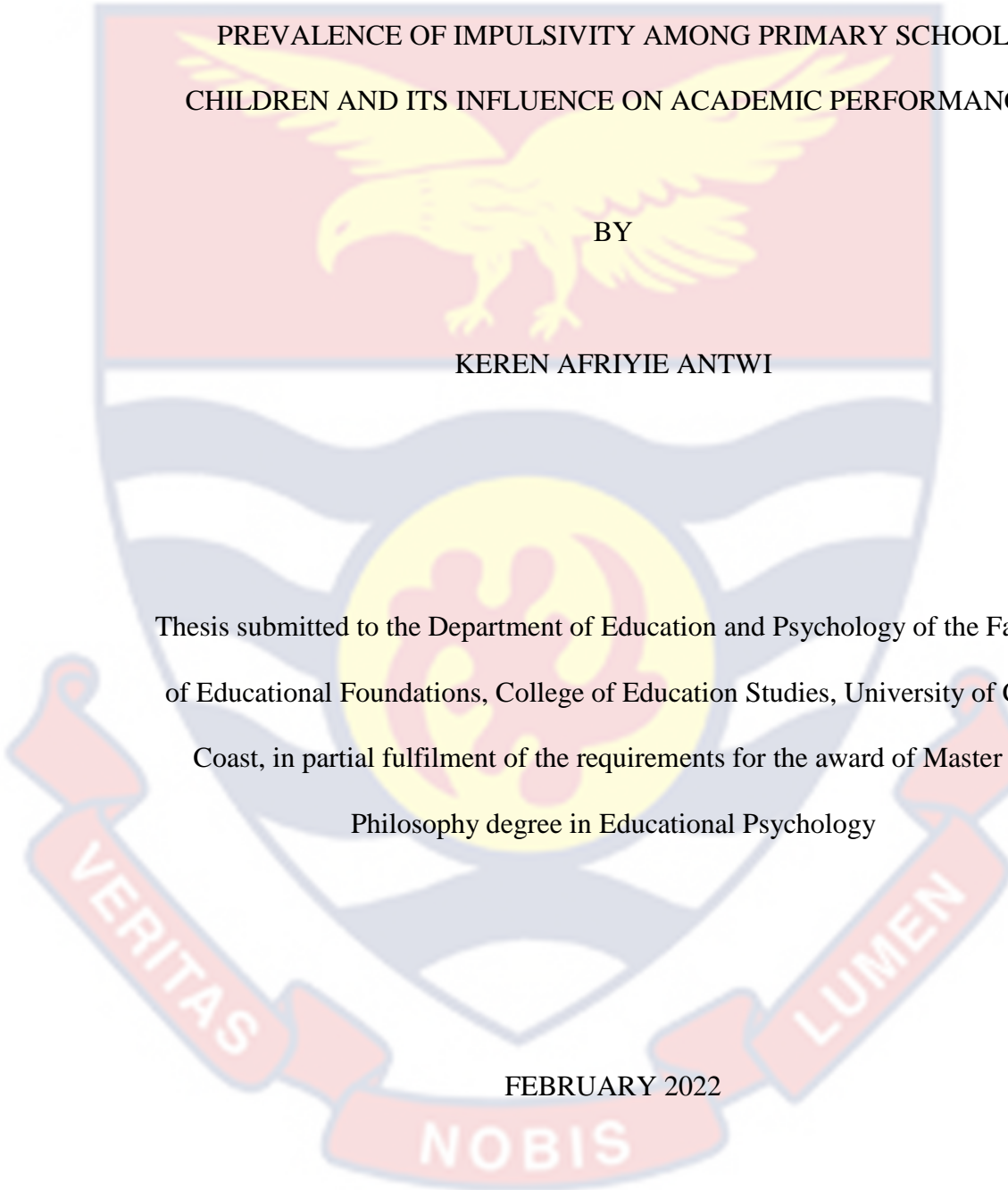
PREVALENCE OF IMPULSIVITY AMONG PRIMARY SCHOOL
CHILDREN AND ITS INFLUENCE ON ACADEMIC PERFORMANCE

BY

KEREN AFRIYIE ANTWI

Thesis submitted to the Department of Education and Psychology of the Faculty
of Educational Foundations, College of Education Studies, University of Cape
Coast, in partial fulfilment of the requirements for the award of Master of
Philosophy degree in Educational Psychology

FEBRUARY 2022



DECLARATION

Candidate's Declaration

I hereby declare that this is the result of my original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature: Date:

Name:

Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised following the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature: Date:

Name:

Co-Supervisor's Signature: Date:

Name:

ABSTRACT

Impulsive children face various difficulties in the classroom, including poor academic achievement. Against this backdrop, the study sought to investigate the prevalence of impulsivity among primary school children, investigate the relationship between parents educational background and pupil's levels of impulsivity, investigate the influence of impulsivity on pupil's academic performance and examine if there are differences in impulsivity prevalence according on sex (or gender). A descriptive survey design and a quantitative approach were used in the study. The study included 202 primary-level five children from the basic schools in Cape Coast Metropolis. Both descriptive (percentages, averages, and standard deviations) and inferential statistics (independent samples t-test, chi-square, regression, and Pearson product-moment correlation coefficient) were used to analyse the research's data. According to the study, impulsivity was present in 17% of the primary school children who took part. The study found that impulsivity is linked to academic success, with non-impulsive kids outperforming their peers. Impulsivity accounts for 11.1% of the variation in academic achievement among students. The study's findings, among other factors, conclude that impulsivity cannot account for around 90% of students' academic performance diversity. It was suggested that several other reasons could contribute to the poor performance of impulsive students and that these issues should be investigated.

KEYWORDS

Academic Performance

Gender

Impulsivity

Non-impulsivity

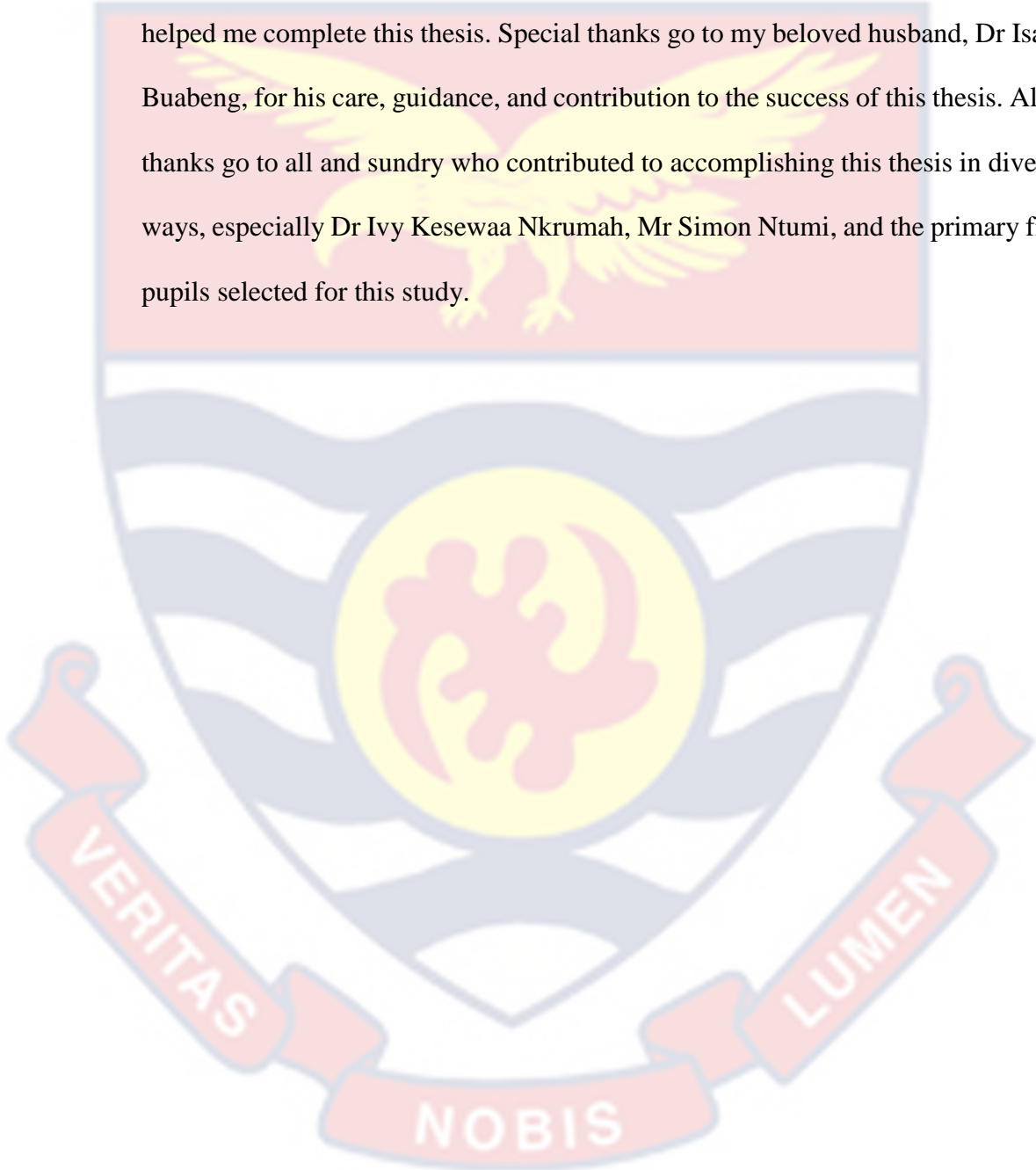
Parents' educational background

Prevalence



ACKNOWLEDGMENTS

Thanks to my supervisor, Prof. Irene Vanderpuye and Prof. Lebbaeus Asamani, for their immense support, guidance, and constructive criticisms, which helped me complete this thesis. Special thanks go to my beloved husband, Dr Isaac Buabeng, for his care, guidance, and contribution to the success of this thesis. Also, thanks go to all and sundry who contributed to accomplishing this thesis in diverse ways, especially Dr Ivy Kesewaa Nkrumah, Mr Simon Ntumi, and the primary five pupils selected for this study.



DEDICATION

To my beloved husband, children, family and friends



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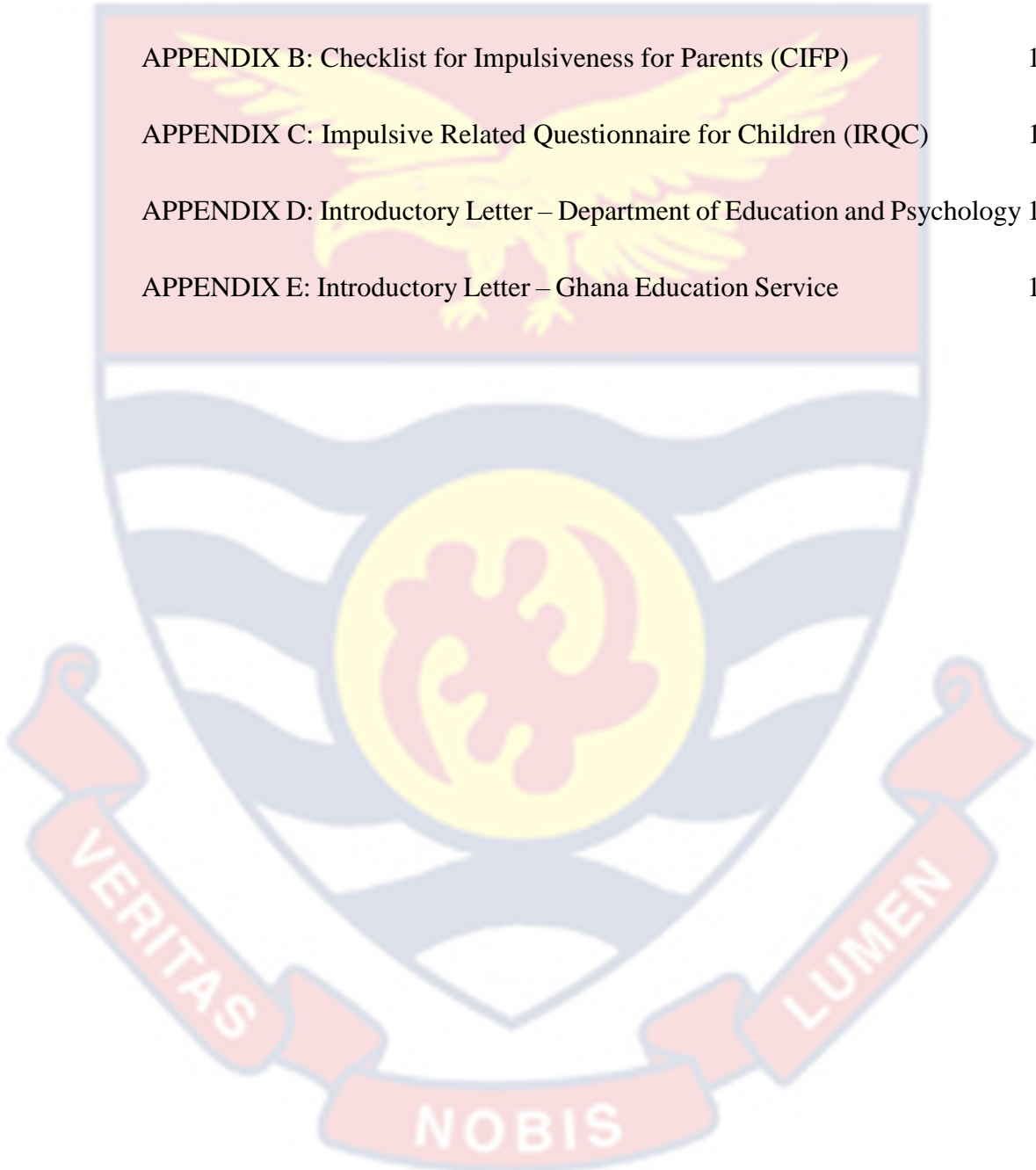
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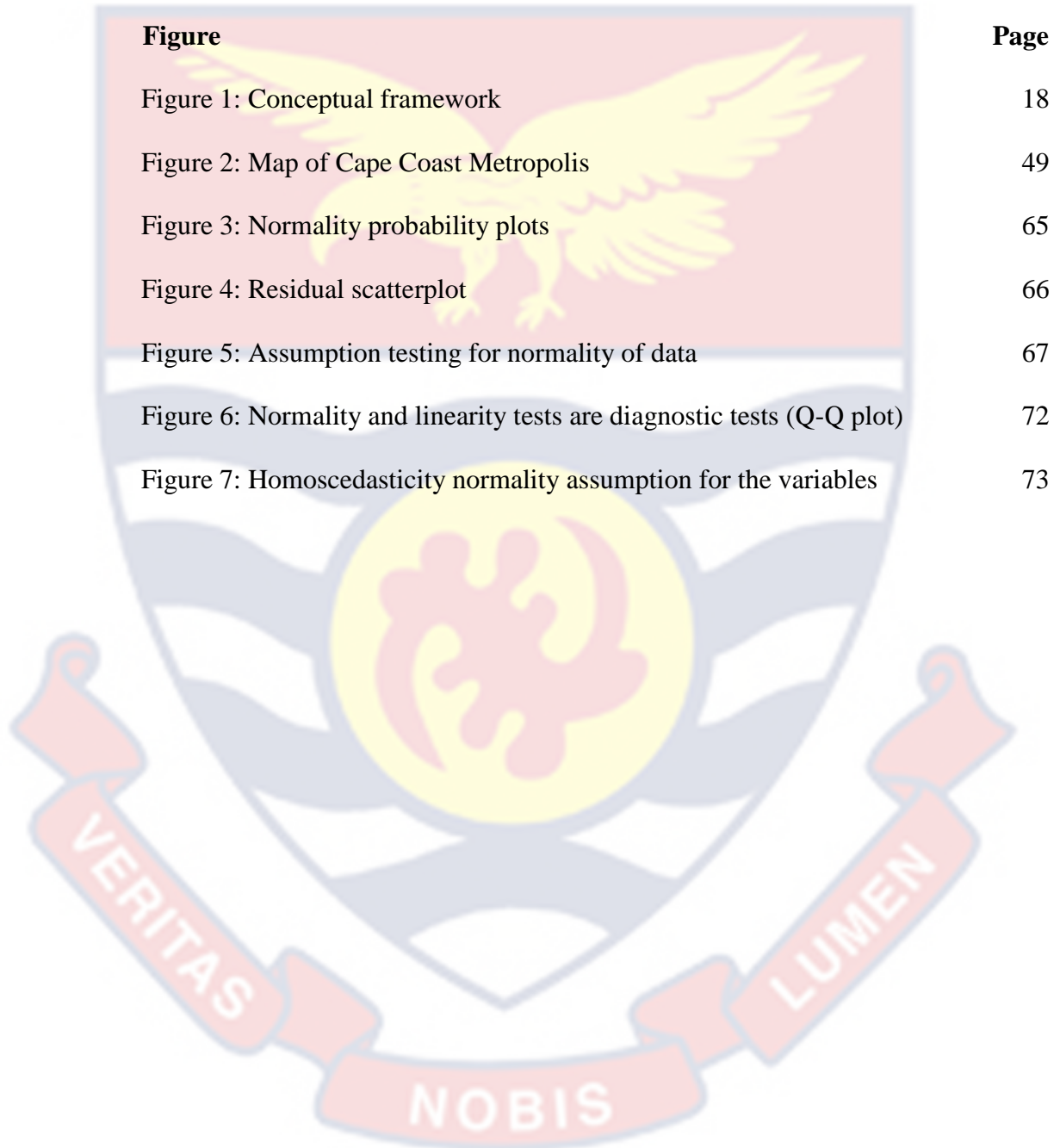


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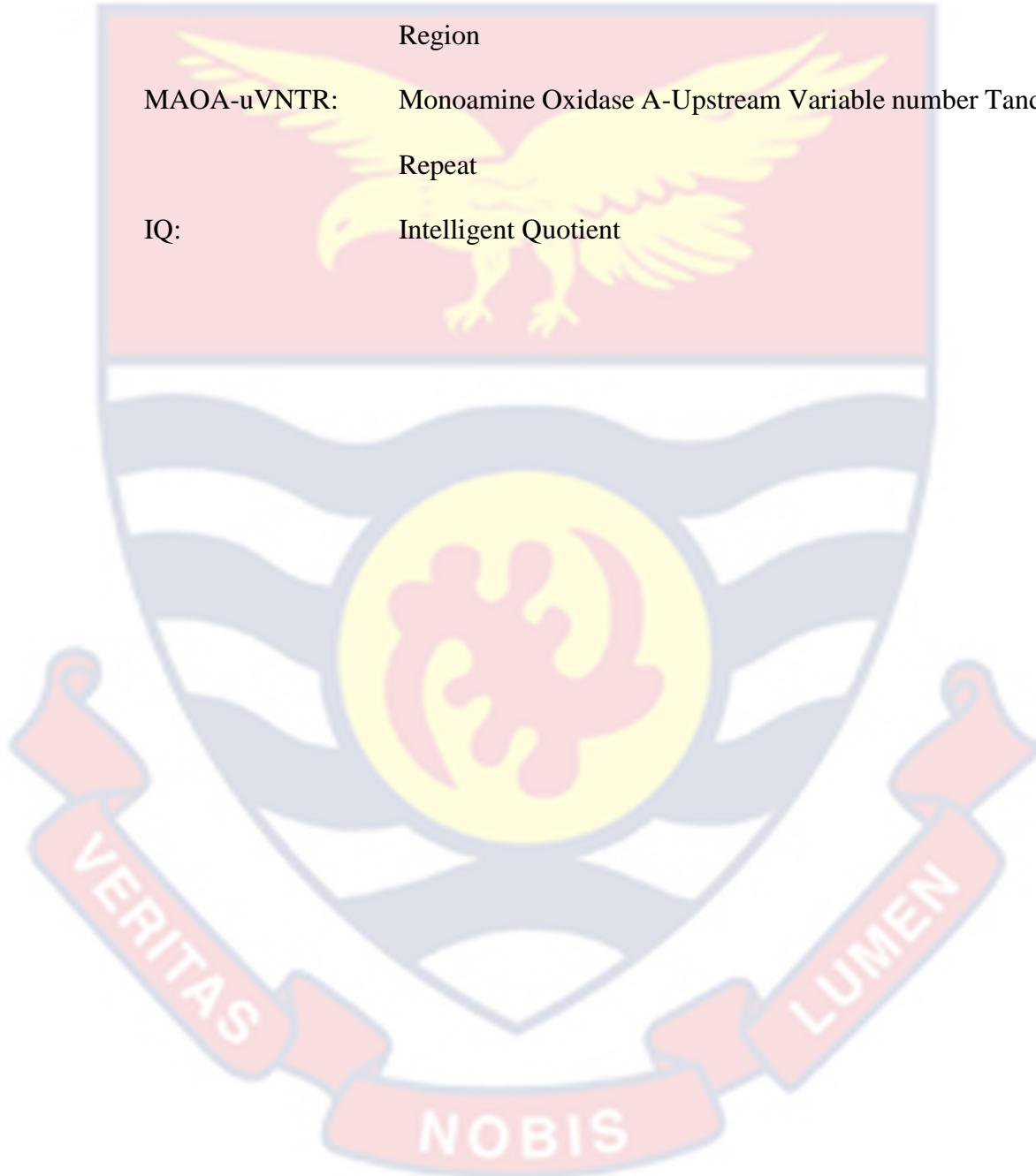


LIST OF ACRONYMS

PIP: Teachers' Performance Improvement Plan
5-HTTLPR: 5 Hydroxyl Tryptamine Transporter Linked Promoter

Region
MAOA-uVNTR: Monoamine Oxidase A-Upstream Variable number Tandem Repeat

IQ: Intelligent Quotient



CHAPTER ONE

INTRODUCTION

So many a times we tend to see numerous actions from our children that frighten us. Parents strive to understand their children. Teachers at the basic level are faced with questions and concerns as to how to manage children. Children we teach have the tendency to excel both in the classroom and outside of it. Their actions inform us as to what could impede their performance either academically or in their extra-curriculum activities. However, some actions exhibited by children could be intriguing and demanding of attention. The question remains – ‘do all of our children think before acting?’ Those we see to be aggressive in their behaviour or actions are term to be impulsive. Hence, the tendency to act without thinking is known as impulsivity (Carver, 2005). Though, impulsivity lacks a general definition, several proponents have defined it culturally, contextual and geographically.

Nonetheless, impulsivity could be described as reacting to situations quickly and without thinking. It can be a standard quality that has an impact on daily life or a psychopathological component of a mental condition such as borderline personality disorder, ADHD, violent behaviour, or self-mutilating behaviour (Cyders & Smith, 2008). Thus, could impulsivity among primary school children has an impact on academic performance?

In Ghana, the prevalence rate of impulsive behaviours among children coupled with other influences could be impeding factors affecting children

academic performance ((Ames & White, 2011; Kieling & Rohde, 2010; Polderman et al., 2010).

However, the current study narrowed the situation by investigating the prevalence of impulsivity, an internal learner factor, and its' influence on the academic success of basic school pupils.

Background to the Study

Impulsivity is a human personality attribute that can either help or hurt us in our daily lives. The ability to act on impulse, for example, may enable us to take advantage of a good chance or make a horrible mistake that we later regret. Impulsivity is a common personality feature (Chamberlain, Stochl, Redden, & Grant, 2018; Eysenck & Eysenck, 1978; Reynolds, Penfold, & Patak, 2008). While impulsivity can be a normal behavior in young children and teenagers, it can also be a serious problem or symptom of a major mental health issue. High levels of impulsivity have been linked to mental illnesses like ADHD, mania, substance misuse, and personality disorders, suggesting that this personality trait could be risky (American Psychiatric Association [APA], 2013). Impulsivity, aggression, anxiety, and hyperactivity affect sleeping habits of pupils and their academic progress (Bruni et al., 1996; Montgomery-Downs, O'Brien, Holbrook, & Gozal, 2004).

Although impulsive behaviour has autonomous scopes or dimensions, factor analysis of self-questionnaires shows that the detailed description of the main pieces is subject to considerable variance (Evensen, 1999). The tendency to act without thinking is known as impulsivity (Carver, 2005). One way to explain

impulsivity is to look for common traits like faulty inhibitory control, intolerance of delay to incentives, and rash decision-making due to a lack of thought, as well as more universal impairments like poor attention skills (Enticott & Ogloff, 2006). Despite the lack of a general definition, Daruna and Barnes (1993) define impulsivity as a series of badly planned behaviours, prematurely expressed, extremely dangerous, for the circumstance, and usually have adverse effects.

Impulsivity is described as reacting to situations quickly and without thinking. It can be a standard quality that has an impact on daily life or a psychopathological component of a mental condition such as borderline personality disorder, ADHD, violent behaviour, or self-mutilating behaviour (Cyders & Smith, 2008; Menzies, 1997; Moeller, Barratt, Dougherty, Schmitz & Swann, 2001). ADHD, which is marked by inattentiveness, hyperactivity, and impulsivity, is without a doubt the most common impulsivity-related disorder in children. Invariants of ADHD are classified as ADHD mixed appearance, ADHD inattentive presentation, and ADHD impulsivity presentation, and these symptoms can emerge separately or in combination (Epstein & Loren, 2013). Some children are “impulsive,” meaning they answer quickly and make many mistakes, while others are “reflective,” meaning they respond slowly and make fewer mistakes. Reflectivity is the polar opposite of impulsiveness. Before committing to cognitive activities, the reflective individual is known to evaluate alternate approaches (Nkrumah, Olawuyi, & Torto-Seid, 2015).

In milder versions, impulsivity may affect academic performance, parent-child relational problems, sibling or peer relational problems, and other DSM-IV V-code conditions. Poor problem-solving ability and bad personality qualities are associated to impulsivity. They are known for academic failures, not because they are stupid, but because their mental processes are flawed. Individuals also have social deficiencies because of unfavourable behavioural features (Child as cited in Zirpoli, 1990). In milder versions, impulsivity may affect academic performance, parent-child relational problems, sibling or peer relational problems, and other DSM-IV V-code conditions. Impulsivity has been linked to poor problem-solving skills and unfavourable personality traits. They are known for their academic failures because their thinking processes are defective, not because they are stupid. Individuals also have social deficiencies because of unfavourable behavioural features (Child as cited in Zirpoli, 1990). Several age-extrinsic variables have an impact on a child's development. According to Kalff et al. (2001), parental education and employment, for instance, have a significant influence on problem behaviour and attention issues in 5- to 6-year-old children. Factors such as parental level of education on children's impulsivity have received little attention in previous studies. A study conducted by Japar (2017), indicated that the parents' education and personality influence child disruptive behaviour.

Although it has been more widely accepted that there is a sex difference in impulsivity, little research has been done on the causes of this difference. However, none of these literary works attempt to explain why males and girls

exhibit impulsivity in essentially different ways. Significant gender variations in impulsivity have been found in studies, while other studies and theories suggest the causes of impulsivity. According to the power control theory (Hagan, Simpson, and Gillis, 1987, 1988), boys are given more freedom to take risks than girls are, and they also receive less parental supervision. This leads to a preference for risk (a concept theoretically connected to impulsivity), which ultimately contributes to the gender gap in delinquency. Despite the fact that this theory focuses on gender differences, a gender-neutral approach is recommended, which holds that gender differences are caused by exposure to the same factors in various quantities.

According to psychological research on the subject, infants that exhibit impulsivity later in infancy are more likely to suffer early cognitive (especially linguistic) and motor ability impairments. According to researchers, this could be because children's language and motor skill impairments make it difficult for them to control their anger and delay satisfaction. Additionally, it's possible that gendered socialisation has a detrimental effect on self-control and that boys and girls perceive impulsivity differently. Boys may see impulsivity as a part of their maturing manly character whereas girls may perceive it as a symptom of potential victimisation. If so, these skills were likely learned at home via socialisation, discipline, and supervision even if they did so in an unequal social environment. The development of physical and cognitive abilities may combine with socialisation to give alternative paths to impulsivity in boys and girls, depending on biological and developmental differences.

Some characteristics that indicate someone is impulsive include less sensitivity to the adverse repercussions of behaviour, an emotional or spontaneous reaction to stimuli before thoroughly processing the information, and disregard for the long-term implications of behaviour. (2000) Moeller and co. Lower processing speed in impulsive youngsters is anticipated to have a considerable detrimental effect on academic success in addition to attentional impairments and executive function deficiencies (Mayes & Calhoun, 2007). The neuropsychology of impulsivity includes cognitive failure, however not all students with impulsivity have cognitive issues (Nigg, Wilcutt, Doyle, & Sonuga-Barke, 2005). While there is mounting evidence that cognitive impairments cause children to be impulsive in their academic performance, other variables are likely to be at play as well. According to Ramirez & Andreu (2006), Stein, Smits, Johnson, Liston, & Madden (2013), and Whiteside & Lynam (2001), impulsivity may be categorised in a number of ways, including attentional, motor, and non-planning impulsiveness. As a consequence, there is a lot of study on impulsivity. The goal of this study is to further understanding in this area by examining the incidence of impulsivity and how it affects primary school students' academic performance.

Statement of the Problem

Pupils that are impulsive in the classroom face a variety of challenges. As a result of their inattention and hyperactivity-impulsivity, children with impulsivity are more likely to engage in task-irrelevant activities (such as

fidgeting, wiggling, daydreaming, or oppositional behaviours) (DuPaul et al., 2004; Kam, Lee, Cho, Shin, & Park, 2011; Moore, Russell, Arnell, & Ford, 2017).

For instance, impulsivity, the most prominent construct in most personality theories, encompasses a variety of behaviours that show a lack of self-control, such as poor planning, prematurely responding without taking into account the consequences, sensation-seeking, risk-taking, an inability to inhibit responses, and a preference for immediate rewards over delayed rewards, among many others (Evenden, 1999)".

The signs of impulsivity vary from child to child and do not emerge in the same way in all children (Martel & Nigg, 2006). As children get older, their habits may change. For several reasons, children can be impulsive. It can also be due to maturation. Not all children develop at the same rate, and some take longer than others to develop the ability to pause and consider their actions before acting (Olson, Bates, Sandy, & Schilling, 2002). Stress, frustration, and a lack of sleep can contribute to impulsive behaviour (van Peer, Gladwin, & Nieuwenhuys, 2019). When children have difficulty at school or in their daily lives, they may act out. Something else could be the source of impulsivity in some children. ADHD is one of the leading reasons for impulsive behaviour (Ames & White, 2011; Kieling & Rohde, 2010). According to Polderman, Boomsma, Bartels, Verhulst, and Huizink (2010), the evidence for the harmful consequences of impulsivity (behavioural) symptoms is especially high for those of inattention, but it is equally clear for those of hyperactivity-impulsivity.

Explicitly, inattention symptoms were linked to poor academic performance (math, reading, spelling), a lower possibility of graduating from high school, and a higher likelihood of failing to continue to college (Polderman et al., 2010). Hyperactivity-impulsivity symptoms were linked to poor performance on achievement tests in these studies (Ames & White, 2011; Kieling & Rohde, 2010; Polderman et al., 2010), as well as fewer years of schooling, worse grades, failing to complete high school, and a greater need for special education (Ames & White, 2011; Kieling & Rohde, 2010; Polderman et al., 2010). In children, adolescents, and young adults, sudden symptoms had negative impacts, consistent with findings from prior literature aggregations (Frazier, Youngstrom, Glutting, & Watkins, 2007). In research on learning issues in Ghana, 65 percent of teachers, 43 percent of headteachers, and 62 percent of parents who contributed to the survey rated impulsive features as the source of learning problems in children.

The reasons for failure in Ghanaian schools were investigated by researchers (Adane, 2013; Ampofo, 2016; Opare & Dramanu, 2002). Parents' socioeconomic level, parental participation in their children's education, gender, academic ambition, indiscipline, school infrastructure and amenities, stimulus, reinforcement, and anxiety have proven to be factored in academic failure. All related criteria, such as academic ability or pupil performance, must be examined to provide comprehensive research on impulsive conduct in primary school children.

Reading previous works, it appears that most of the cited studies on children's impulsiveness seem to be focusing on impulsivity and other social

variables such as relationships, interactions, and aggressiveness while neglecting classrooms achievements (Owens & Hoza, 2003; Tsukayama, Duckworth, & Kim, 2013; Vigil-Colet, Morales-Vives, & Tous, 2008). This has created a literature gap where little information is accrued on children's impulsiveness and academic achievement, especially in the Ghanaian context. Motor and attentional impulsivity were linked to violent and general delinquent behaviours, as well as hostility (Adjorlolo, Asamoah & AduPoku, 2018). Findings from studies on impulsivity and its relations with social variables such as aggression, interactions, and relationships cannot be used to interpret children's academic achievement concerning impulsivity. This gap has warranted a study to determine the impact of impulsivity on academic achievement.

The influence and relationship between academic success and impulsivity have been documented in the literature in other jurisdictions. For instance, Babaeian and Jamshidzadeh (2015) discovered a link between pupils' impulsivity, timidity, and academic achievement. Also, Alavi et al. (2019), in their study on attention, impulsiveness, gender, and academic success, showed that impulse control significantly predicted academic achievement. Furthermore, Pope (2010) indicated that students who scored higher on the inattention and impulsivity scale had a poorer final average percentage mark and were less likely to finish their degree in three years. These studies, however, were conducted in Europe and Asia. The present study sought to find out the influence impulsivity has on the academic achievement of primary school children in Ghana as findings from Europe, and Asia cannot be used to interpret behaviours in Africa due to the

ecological differences (lifestyle, child upbringing, school, and home environment among others) in these different geographical areas.

Studies bordering on academic achievement in the Ghanaian culture have mainly focused on motivation, classroom environment, teacher factors, and other home and school environmental factors on academic achievement. According to Ampofo (2016), the critical drivers of academic accomplishment were parental participation, a pupil's gender, academic drive, and efforts. Using the Pearson Product Moment Correlation Coefficient, it was also discovered that academic motivation and academic achievement have a positive association (Dramanu & Mohammed, 2017). Again Abdallah, Fuseini, Abudu, and Nuhu (2014) found that the combined effects of home and school environmental factors emerged as the significant contributors of academic achievement. While the significance of these studies cannot be underestimated, they failed to acknowledge the role of internal learner factors such as impulsivity and inattention in students' academic achievement. Internal learner factors such as impulsivity play a role in academic achievement (Nkrumah et al., 2015). Findings from studies that focus on motivation, home, school environment, and teacher factors cannot explain the role of internal learner factors such as impulsivity on academic achievement. Hence the present study intends to investigate the prevalence of impulsivity, an internal learner factor, and its' influence on the academic success of basic school pupils.

Purpose of the Study

The study's main goal was to find out how common impulsivity is in Ghana and how it affects children's academic performance. The study's objectives were to

look into the following:

1. Prevalence of impulsivity among primary school children.
2. Relationship between pupils' levels of impulsivity and parents' educational background.
3. Influence of impulsivity on pupil's academic performance.
4. Sex (gender) difference in the prevalence of impulsivity
5. Relationship between gender and impulsivity.
6. Relationship between children's impulsivity and their performance in English language.
7. Relationship between children's impulsivity and their performance in Mathematics.
8. Gender difference between impulsive and non-impulsive pupils with respect to their academic performance.

Research Questions

The research was guided by the following questions:

1. What is the prevalence rate of impulsivity among primary school children in Ghana?
2. What is the relationship between pupils' level of impulsivity and their parent's educational background?
3. What is the influence of impulsivity on children's academic performance?

Research Hypotheses

“The study looked into the following hypotheses.

Ho₁: There is no significant gender difference in the academic performance of pupils with impulsivity.

H_{A1}: There is a significant gender difference in the academic performance of pupils with impulsivity.

Ho₂: There is no significant difference in prevalence of impulsivity.

H_{A2}: There is significant difference in prevalence of impulsivity.

Ho₃: There is no significant relationship between children’s impulsivity and their performance in the English language.

H_{A3}: There is a significant relationship between children’s impulsivity and their performance in the English language.

Ho₄: There is no significant relationship between children’s impulsivity and their performance in Mathematics.

H_{A4}: There is a significant relationship between children’s impulsivity and their performance in Mathematics.

Ho₅: There is no significant difference between impulsive and non-impulsive pupils concerning their academic performance.

H_{A5}: There is a significant difference between impulsive and non-impulsive pupils concerning their academic performance.”

Significance of the Study

Schools, special educators, counsellors, teachers, students, parents, administrators, educational policymakers, and the general public are likely to

benefit from the findings of this study. In partnership with school administrators, special educators and school counsellors may identify pupils who exhibit impulsivity and its influence on their academic performance and help them appropriately. It will also inform Ministry of Education and Ghana Education Service on the need to encourage and modify instruction for children who are impulsive. Future scholars who wish to perform field research or repeat the study in a new location might use the study's findings as a reference.

Delimitation

It is worth noting that pupils in the classroom have several challenges that can affect their academic performance, such as their indiscipline, gender of the child, parental involvement, and child's academic ambition. The study was delimited to only five selected primary public schools in Cape Coast. The study focused on the prevalence rate of impulsivity among primary school children. In terms of academic performance, only their terminal test scores were used. Impulsivity as the independent variable was the only construct used and gender and parent's educational background were the only factors considered as the factors that can cause impulsivity

Limitation

The research design used was a descriptive survey with a demand characteristics problem; thus, respondents will not be 100 percent truthful with their answers (Preisendörfer & Wolter, 2014). There was also a survey taking fatigue on the part of the teachers.

Furthermore, the study's findings were less generalizable due to the purposive sampling method employed to identify the schools that took part. It is feasible that other primary school students from various schools could have provided helpful information for the study. As a result, the findings from the chosen schools will not apply to other schools in the Cape Coast Metropolis. On the other hand, the findings indicate what may be occurring in other schools around the Cape Coast Metropolis and the country.

Operational Definition of Term

Impulsive: A personality feature characterized by a child's proclivity to act/initiate behaviour without sufficient deliberation or consideration of the action's consequences.

Organisation of the Study

The study was divided into five sections, each focusing on a distinct investigation aspect. The background, problem statement, purpose, research questions and hypothesis, significance, delimitation, and limitation of the study were all addressed in Chapter One. Chapters two and three included a literature review, research methods, sample and sampling methodologies, and explanations of data gathering and analysis research tools. The results and analysis of the data were reported in Chapter Four. Summary, conclusion, and suggestions were discussed in Chapter Five.

CHAPTER TWO

LITERATURE REVIEW

The review is divided into four sections: theoretical, conceptual framework, conceptual review, and empirical review. Its purpose was to give a complete review of the literature on primary school pupils' impulsivity and how it affects their academic performance.

Theoretical Framework

Gray's Model of Impulsivity, (1987)

“Gray's impulsivity model (1987) was used in this study. Gray's hypothesis assumes that neurologically-based motivational systems cause higher-order personality traits such as anxiety and impulsivity. In Gray's model (Gray, 1987; Gray & McNaughton, 2003), there are three conceptual bio-behavioural systems: a threat-reaction system (the fight/flight/freeze system, or FFFS), a reward-reactivity system (the Behavioural Approach System, or BAS), and a conflict-reactivity system (the Behavioural Inhibition System, or BIS) (that is, the Behavioural Inhibition System, or BIS). According to the revised theoretical model, the FFFS is believed to mediate unpleasant responses to all aversive stimuli, including conditioned and unconditioned punishment cues (some of these functions were attributed to the BIS in earlier iterations of this model)”.

The most prevalent emotional expressions created by this system are fear and panic, with inclinations toward aggressive avoidance, escape, and defensive conduct. The BAS idea considers individual variability in reaction to all palatable stimuli.

“BAS activity has been connected to the termination or omission of unpleasant environmental events, as well as positive feelings in the presence of reward cues and the response to the termination or omission of adverse environmental events.

In situations involving several motivations or aims, response conflict elements (e.g., FFFS and BAS coactivation) engage the BIS, which is assumed to be responsible for trait anxiety (e.g., those associated with conflict, ambiguity, or uncertainty). Present activity is initially muted after BIS activation, and attentional resources are transferred to conflict-related signals (e.g., in the service of risk assessment). Participants utilize FFFS (e.g., avoid, flee) or BAS (e.g., approach) interaction to solve the problem”

BAS activation is thought to be the primary driver of reward-seeking behaviour in Gray's model. The most prominent action patterns related to BAS mediation are novelty-seeking, risk-taking, and thrill-seeking (Smillie, Jackson, & Dalgleish, 2006). When no endogenous regulatory systems are present to inhibit activity in the presence of threat, danger, or punishment cues, or when there are response conflicts, disinhibited behaviour can develop. According to some viewpoints, disinhibition has traditionally been associated with bravery (e.g., Lykken, 1963). According to Gray's revised model, fearlessness is linked to the FFFS' low activation in threat, danger, or punishment circumstances. Because BIS activation involves the activation of both the FFFS and the BAS systems, it is unlikely to occur without a fear experience (and FFFS activation).

According to this theory, continuing conduct is defined as past behaviour perpetuated as a result of a reward (BAS activation). A conflict situation emerges

(BIS activation) when threat or punishment signals are supplied during current behaviour (FFFS activation), leading the behaviour to be inhibited while further information is acquired and processed. As a result of this new information, the nature of the disagreement is better recognized, and behavioural resolution choices are suggested (e.g., active avoidance or escape, continued inhibition of behaviour, the resumption of behaviour).

In conclusion, Grays model explains that individuals with behavioural inhibition systems are motivated to avoid punishment, that is harm avoidance. People who are high in this tend to be prone to anxiety and worrying. Individuals who are low in BIS are prone to impulsivity, risk taking and Attention Deficit Hyperactivity Disorder (ADHD). People who are high in BIS tend to have higher activity in hippocampus (memory), that is, they have higher memory to things that scare them. They also have high norepinephrine (fight/flight) responses, that is active when bad things happen to them. They also agree to statements like “criticism and scolding hurts me quite a bit.”

People with behavioural activation system are motivated to seek rewards. Individuals with too much BAS are prone to impulsivity, addiction or rewards. Too little of BAS means they have difficulty taking risks or experiencing pleasure. Neurologically, they have lower activity in hippocampus, that is, lower memory on things that scare them and they also agree to statements like “ I crave excitement and new sensation.”

Conceptual Framework

The conceptual framework gives a schematic representation and understanding of the study. The study is anchored and directed on the prevalence of impulsive behaviour and its influence on the academic progress of primary school pupils in the Cape Coast metropolis. As illustrated in Figure 1, the framework describes how parents' educational background and gender (independent variables) affect children's impulsivity and academic success (dependent variable) in which English and Mathematics are embedded.

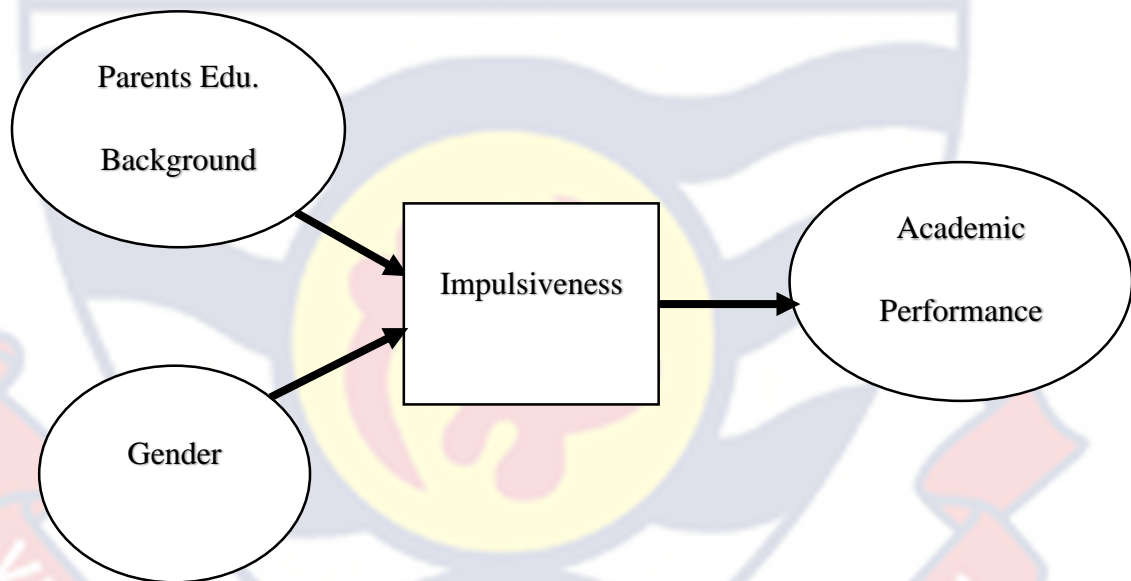


Figure 1: Conceptual framework

In the sequel to the above illustration, the framework also gives credence to the idea that basic school pupils are the centre (mediator) of the presence of impulsive and non-impulsive behaviour. This implies that the severity of impulsivity appears to be very common among primary school children. Though

the researcher's prepositions and understanding influence the framework, it must be clear that it directly relates to the theoretical model (Gray's Model). Gray's theoretical model suggests that trait impulsivity and individual differences could be influenced or predicted by environmental factors (such as parents' educational background, subjects learned in school, gender, parents' socioeconomic situation, parental involvement in their children's schooling). In essence, when all these factors are not well monitored and controlled, it could negatively affect the students' academic outcomes.

Conceptual Review

The different concepts that underpin the study are covered in this part. Under the following subheadings, the review is presented and discussed: the biological root of impulsivity, brain structures, neurotransmitters, nature of ADHD, the developmental root of impulsivity, interaction of genes and environment on impulsivity, factors affecting impulsivity, multidimensional nature of impulsivity, and measurement of impulsivity construct.

The Concept of Impulsive Behaviour and Impulsivity

The cognitive, behavioural, and characterological aspects of impulsivity have been examined. To begin, Eysenck (1993) described impulsivity as taking chances, not planning ahead of time, and making snap decisions (Arce & Santisteban, 2006). The cognitive and behavioural schools have attempted to distinguish themselves by offering several explanations to the reader. In terms of behaviour, impulsivity is characterised as a wide spectrum of acts that are "poorly planned, prematurely expressed, overly dangerous, or unsuited to the

circumstances and that frequently have negative consequences" (Evenden, 1999, p. 348). The inability to delay satisfaction is one of the most basic definitions of self-control (Monterosso & Ainslie, 1999). In the world of experimental behavioural research, impulsivity is defined as a trait displayed by some participants who choose lesser immediate rewards to higher delayed benefits when offered a choice of outcomes. (Arce & Santisteban, 2006). The importance of punishment is included in Ho, Ianssek, Marigliani, and Bradshaw's (1998) definition, as does the preference for little immediate rewards over more significant delayed gains and the preference for significantly delayed penalties over minor instant penalties.

Motor (or behavioural) impulsivity is distinct from cognitive (or choice) impulsivity, according to Bechara, Tranel, and Damasio (2000) and Bechara (2002), respectively. Animals are often studied for the former related to response inhibition. Horn, Dolan, Elliott, Deakin, & Woodruff (2003), reversal learning tasks (e.g., Pattij & Vanderschuren, 2008), continuous performance assessments (Holmes et al., 2002), or stop tasks (Avila, Cuenca, Félix, Parcet, & Miranda, 2004) and other instruments have been used to examine this sort of impulsivity (Bechara et al., 2000). Because of the importance of 5-hydroxytryptamine in aggression, drug addiction, and anxiety, animal research on motor impulsivity have been extensively conducted (Brunner & Hen, 1997). Cognitive impulsivity, on the other hand, is characterized as the inability to delay gratification due to a lack of understanding of the consequences of current and future events.

Motor (or behavioural) impulsivity is distinct from cognitive (or choice) impulsivity, according to Bechara, Tranel, and Damasio (2000) and Bechara (2002), respectively. Animals are often studied for the former related to response inhibition. To measure this type of impulsivity, researchers have used go/no-go (e.g., Horn, Dolan, Elliott, Deakin, & Woodruff, 2003), reversal learning tasks (e.g., Pattij & Vanderschuren, 2008), continuous performance tests (Holmes et al., 2002), or stop tasks (Avila, Cuenca, Félix, Parcet, & Miranda, 2004) and other instruments (Bechara et al., 2000). Because of the involvement of 5-hydroxytryptamine in aggression, drug addiction, and anxiety, motor impulsivity has been widely studied in animal research (Brunner & Hen, 1997). Cognitive impulsivity, on the other hand, is described as an inability to wait gratification and a failure to understand the consequences of current and future occurrences (Arce & Santisteban, 2006). In lesion studies, the central location of impulsivity has been identified as the ventromedial prefrontal cortex (Bechara, 2002).

“When it comes to psychopathology, impulsivity is defined as (1) quick decisions made without thinking or conscious judgement, (2) flawed cognition, and (3) a propensity to act more carelessly than most people of a same level of aptitude and competence. Consequently, impulsivity has been connected to a variety of learning issues. (Barkley, 1997), anxiety and depressive disorders (Delgado, Sánchez, & López-Oliva, 2005), and cluster B personality disorders, including borderline and antisocial personality disorders. In this context, impulsivity is defined by Atmaca (2014) as the inability to control an urge, desire, or temptation to harm oneself or others”. This restrictive clinical definition only

considers the negative or pathological aspects of the construct (Ho et al., 1998), with no differentiation made between impulsivity and violence. Dickman (1990) characterized functional impulsivity as "full of life, adventurous, risky, and quick to make decisions" in an attempt to provide a more positive, non-pathological picture of impulsivity.

In conclusion, the quest for a single definition is still ongoing. Experiments have separated impulsivity into two main components (motor and cognitive) to improve the measurement's validity. This distinction may also help distinguish between impulsivity's antecedents (such as distractibility) and consequences (such as impulsivity) (such as violent behaviour). Due to time limits, the scope of this study's review was confined to the concept's cognitive and behavioural aspects.

Biological Root of Impulsivity

Biological research on impulsive behaviour has concentrated on three areas in recent years. Differences in specific brain structures, such as serotonin, neurotransmitter involvement, and dopamine (Eysenck, 1995) and the link between specific genes and impulsive behaviour, are among these differences (Eysenck, 1995).

Brain Structures

Different parts of the brain have been related to impulsive behaviour in research (Pattij & Vanderschuren, 2008). Prefrontal brain variances, in particular, have been linked to differences in the ability to stop acts that could affect long-term goals. The prefrontal cortex is the most significant part of executive

function, which involves cognitive control, decision-making, and planning (Funahashi, 2001). Prefrontal brain dysfunction appears to increase impulsive behaviour in people, according to studies (Greene, Heilbrun, Fortune, & Nietzel, 2007; Vonder Haar et al., 2017). A classic example of the impact of an injury is Phineas Gage, a railroad worker who survived an accident in which a long metal rod entirely pierced his skull, shattering portions of the prefrontal cortex. He was still alive and had no memory issues, but his personality had changed considerably, with greater impulsivity and moodiness (Fleischman, 2002). The orbitofrontal cortex (OFC) appears to play a crucial function in managing a person's desire to act within the prefrontal cortex (Cyders & Smith, 2008). The OFC moderates ordinary people's impulsive reactions. According to the researchers, it achieves this "presumably through communicating information and an inclination toward long-term goal-directed behaviour" (Cyders & Smith, 2008, p. 815).

To put it another way, it is challenging to resist rapid gratification without the OFC online (such as gambling or drinking). This viewpoint is supported by research on OFC injury patients with impulsive problems. Fineberg et al. (2010) established that those with damage to the OFC scored higher in impulsivity than people with damage to other areas of the prefrontal cortex. Damage to the OFC makes them as impulsive as people with BPD.

Neurotransmitters

It is worth emphasizing that some brain regions operate as components of neural networks, and impulsive behaviour results from communication between brain networks (Neto & True, 2011). The prefrontal cortex (especially the OFC) and amygdala appear to be essential in impulsive behaviour (Blair, 2010). The amygdala, part of the limbic system's subcortical layer, is critical for emotional data processing. It responds to sensory information about a threat to oneself or one's goals, causing arousal if either is threatened (Morgane, Galler, & Mokler, 2005). Neurotransmitters like serotonin and dopamine, in particular, allow the prefrontal cortex and the amygdala to communicate in both directions (Neto & True, 2011). If neural networks work correctly, a tendency to act rashly based on limbic arousal is restrained by prefrontal brain communication (Garris & Wightman, 1994).

Low serotonin levels have been linked to a rise in dangerous behaviours like self-mutilation, violence, suicide, a lack of self-control, substance misuse, sexual addiction, pathological gambling, and unintended hostility, according to studies (Barbui, Esposito, & Cipriani, 2009; Coscina, 1997; Zuckerman & Kuhlman, 2000). Including patients with one or more mental diseases was a drawback in the early research. According to the findings, low serotonin levels are linked to impulsivity in non-mental patients, which is consistent with previous research. A fantastic study employed a double-blind experimental design (Walderhaug et al., 2002). The study enlisted 24 male students, ranging in age from 21 to 29. The experimental group was given a cocktail of essential amino

acids that quickly depleted tryptophan and decreased serotonin levels. Participants completed computerized impulse responsiveness tests while under the effect of the amino acids. The subjects whose 5-HT levels were experimentally reduced showed increased levels of impulsivity, according to the findings (Walderhaug et al., 2002).

In disparity to serotonin activity, dopamine (DA) is a neurotransmitter that promotes reward-seeking behaviour (which aids the control of emotion-infused desires). Dopamine influences the amygdala circuit, just like serotonin. Impulsive conduct is connected to dopamine levels. The serotonin and dopamine systems, most crucially, appear to cooperate.

Nature of Attention Deficit Hyperactive Disorder

According to Pondé and Freire (2007), ADHD is the most prevalent neuropsychiatric issue in children and one of the most prevalent chronic diseases in school-aged children. (ADHD). Inattention, impulsivity, and hyperactivity are the hallmarks of ADHD (Corbisiero, Stieglitz, Retz, & Rösler, 2013), a behavioural illness. Boredom is one of the primary symptoms listed by Lee, Cheung, and Chen (2019) when establishing the diagnostic diagnosis of ADHD. The Diagnostic and Statistical Manual of Mental Disorders: DSM-IV-TR (APA 2013) classifies ADHD as an attention deficit and disruptive behaviour disorder, which are illnesses in which children lack control over their thoughts, emotions, and behaviours. Three kinds of ADHD exist: predominantly inattentive, mostly hyperactive-impulsive, and mixed. Although the description of the illness is not new, it has been extensively researched in recent academic studies. It was

estimated that between 1957 and 1980, just 31 papers on what was then known as hyperkinetic impulse disorder were published. However, by 1990, there had been more than 3,000 publications, increasing the total number of studies to more than 2,000. (2005) (Cole, Cole, & Lightfoot).

Furthermore, according to (Cohen, 2007), this number has increased by more than double in the last 10 years. Additionally, the DSM-IV-TR offers criteria for diagnosing ADHD that are based on a Standardised Clinical Definition. The DSM-IV-TR criteria were utilised by Wodrich, Pfeiffer, and Landau (2008) as the accepted clinical definition for ADHD. There are several variables to take into account, including the severity of the conduct, the onset of symptoms in childhood, the persistence of symptoms, the impact on the child's social and intellectual development, and environments. According to Du Paul (2007), in addition to academic or social impairment, a person must exhibit at least six inattentive symptoms or at least six hyperactive-impulsive symptoms in two or more situations for at least six months before the age of seven. Although impulsivity, lack of self-control, and concentration problems are all frequent signs of ADHD, they may not necessarily indicate that the disorder is present (Holz & Lessing, 2002).

According to Daly, Creed, Xanthopoulos, and Brown (2007), ADHD is a chronic illness characterised by deficiencies in a variety of functional domains that start to show up as cognitive and behavioural symptoms in early infancy. As a result, the illness could be misdiagnosed as anxiety, depression, giftedness, learning impairments, bipolar disorder, conduct disorder, or oppositional defiant

disorder if it is not properly identified. According to Evans, Serpell, Schultz, and Pastor (2007), ADHD is characterised by a pattern of significant attention, motor activity, and impulsivity that occurs more often than is normal. The major symptoms of inattention, impulsivity, and hyperactivity, according to Education and Bruton (2006), lead to immature behaviours with social ramifications. According to Polderman et al. (2010), students with ADHD deal with a variety of issues, such as drug misuse, sexual problems, and criminal driving. The earliest signs of hyperactivity, distractibility, impulsivity, and aggressiveness, according to Loe and Feldman (2007), diminish with time, but newer research indicates that the impacts of ADHD may last far into adulthood (Eccleston, Williams, Knowles, & Soulsby, 2019). ADHD appears to be frequent among school-aged youngsters. ADHD affects children differently at different ages, and its symptoms are age-inconsistent. Symptoms and intensity levels in children can vary greatly.

Learners with ADHD have diverse challenges in schools, such as behaviour management and academic progress, due to their ADHD symptoms (DuPaul & Weyandt, 2006). If proper therapies are not performed when a kid exhibits behaviours linked with ADHD, the implications may include trouble building peer connections (US Department of Education, 2013). It is also being discovered that maintaining friendships is challenging (Hoerger & Mace, 2006). Hoza (2007) revealed that children with ADHD frequently experience peer rejection through studies. In this situation, much of the information appears to be consistent, implying that ADHD symptoms were causing problems for students in public schools.

Distractibility and excessive motor activity combine in the classroom to produce a learner who has trouble interacting with others, owing to their high levels of verbal and physical hostility (DuPaul & White, 2006). Regarding peer connections among ADHD students, rejection does not appear to be the only problem. Their peer problems stem from both negative behaviour outbursts and social skills deficiencies. According to research (Junod, DuPaul, Jitendra, Volpe, & Cleary, 2006), ADHD learners' academic achievement is hampered by irritation and other unpleasant emotions, and their relationships within the school environment are harmed. Thus, for learners with ADHD, the interaction of inattention, peer conflict, and learning difficulties, among other things, compromises learning. According to DuPaul and White (2006), students with ADHD have considerable academic challenges in school, well below their ability grades. As a result, bridging the achievement gap for ADHD students is crucial.

It is critical to comprehend the nature of ADHD's three primary symptoms. When comparing learners of the same age who do not have ADHD to learners of the same age who do have ADHD, it was evident that pupils who have problems paying attention and keeping it have difficulties. Learning difficulties may result from this inattentiveness. They fail to complete mark sets in a school setting, and their organization and processing of knowledge and classroom behaviour problems are further indicators of ADHD (Anhalt, McNeil, & Bahl, 1998). Learners with ADHD, according to Scime and Norvilitis (2006), have unique requirements, including the need to use coping skills when upset and the ability to work at a slower pace than their peers. Because of their trouble staying

on task, these ADHD students produce low-quality work in the classroom, even when they follow directions. Anhalt et al. (1998) claim that students with ADHD divert their attention away from their allocated task and toward a competing task that delivers immediate pleasure. This is supported by the findings of (Antrop, Buysse, Roeyers, & Van Oost, 2005), who discovered that learners with ADHD exhibit inattention more prominently in stimuli-rich contexts.

Impulsivity is a secondary core symptom of ADHD that manifests as a learner's inability to control impulses, resulting in a lack of consideration for consequences before taking action. Behavioural disinhibition and poor planning and organization are characteristic features of impulsivity in ADHD. (Anhalt et al., 1998). The third symptom is hyperactivity, which refers to excessive and immature motor activity that is frequently inappropriate and manifested in stimulus-rich environments (Antrop et al., 2005). The most typical connection between impulsivity and hyperactivity is that these fundamental symptoms are more unpleasant and distracting than inattention. Graczyk et al. (2005) claim that students with ADHD are less challenging in the classroom than students without the disorder. Learners with ADHD will outperform non-ADHD learners in these situations that cause difficulties, such as waiting.

Negative vocalizations, gross motor motions, and a general level of activity are examples of behaviour that distinguishes learners with ADHD from those without the disorder (Lauth, Heubeck, & Mackowiak, 2006). According to Parsons (2015), Learners with ADHD move their bodies more than their peers without ADHD, and increased hyperactivity in a learner leads to more task

inattention. This demonstrates that the actual signs and symptoms are the same for everyone, which is interconnected, having a complicated impact on the behaviour of ADHD students, and that when these three symptoms are combined, non-compliant behaviours emerge. According to Kapalka (2006), impulsivity in ADHD students often leads to an adverse reaction that manifests as oppositional behaviour.

Finally, a rising body of evidence demonstrates that ADHD symptoms are essential predictors of current and future scholastic difficulties (Grills-Taquechel, Fletcher, Vaughn, Denton, & Taylor, 2013). Learners with ADHD have poor academic performance throughout their school careers, resulting in lower-than-potential grades and a reduced likelihood of completing university studies (Weed, Keogh, Borkowski, Whitman, & Noria, 2011).

Attention Deficit Hyperactive Disorder (ADHD) Root of Impulsivity

Impulsivity is a common trait among ADHD students. The heritability of ADHD is 80%. (Willingham, 2005). As a result, a child's genetic background influences whether or not he or she gets ADHD. One of the most heritable mental illnesses is ADHD. A twins-based ADHD investigation was carried out. "The two types of twins are identical (100% shared genes) and fraternal (50% shared genes). Studies demonstrate that if one twin has ADHD, the other is much more likely to develop it if they are identical than fraternal (Joseph, 2000; Levy, Hay, McSTEPHEN, Wood, & Waldman, 1997)". Home lives are pretty similar for identical and fraternal twins. As a result, the shared genetic component drives the

effect. Some genes, most of which are involved in dopamine control, have been identified as likely suspects (Willingham, 2005).

Developmental Root of Impulsivity

According to developmental research, poor parenting has been linked to challenges with impulse control in children and adolescents. According to L'Abate (1993), Self-destructive tendencies such as impulsivity, according to a clinical theorist, are learned at home in the setting of parental attachment. "Sharing of pains and worries of being damaged" (L'Abate, 1993, p. 104) is how he describes intimacy. says that the impulsive child has been subjected to hostile criticism at these highly emotional and vulnerable times. Emotions are not addressed sensitively, methodically, or reflectively. Instead, the child is exposed to discomfort and is taught to react intuitively. Two basic types can both induce and foster impulsivity, according to Neto and True (2011). The Abusive/Apathetic style is characterized by feelings of powerlessness and neglect and physical, drug, sexual, and verbal abuse. Coercive relationships, retribution, stress, and emotional outbursts describe the Reactive/Repetitive style.

Developmental research has backed up this method over the last 25 years. Patterson, DeBaryshe, and Ramsey (1989) looked into a group of families with children who had impulsive externalizing disorders. Patterson concluded that the children's families instil these habits in them. Ineffective parenting, aggressive behaviour, physical assaults, severe discipline, and damaged parent-child relationships do not provide a model of orderly, reflecting emotional reaction, and

parents often reward their children's aggressive behaviour. Pro-social behaviour in children, on the other hand, is frequently overlooked.

A study involving 79 children and their families produced comparable outcomes after a long time (Olson, Bates, & Bayles, 1990). Olson et al. discovered that boys' punitive control and inconsistent discipline are predictors of impulsivity (1990). Perry (2009) discovered a relationship between corporal punishment (such as buttocks slapping) and antisocial behaviour and impulsivity in children aged 2 to 14. Differences in self-control (which includes aspects of impulse control) become apparent from the age of four years, and the feature is consolidated by the age of eight to ten years, according to a recent longitudinal study (Vazsonyi & Huang, 2010).

Deviant behaviour was also linked to a lack of self-control. A reciprocal, synchronous contact was discovered in newborns and pupils' studies (Vitacco & Rogers, 2001). According to a growing body of data, impulsivity is a personality trait that emerges early in life and is relatively stable.

Interaction of Genes and Environment on Impulsivity

In the realm of child abuse, there is a growing understanding that some genetic differences help protect children's outcomes. Children who carried a short – but not a long – allele of the serotonin-related gene 5-HTTLPR were associated with depression in early adulthood, according to Caspi et al. (2002). In terms of impulsivity development, a study looked at the impact of gene variation on MAOA expression on maltreated children and found that those with high MAOA expression did not suffer the expected consequences of maltreatment (Kim-

Cohen et al., 2006). Maltreated children with low gene expression were more prone to act aggressively impulsively. A study of female volunteers who had been through childhood traumas identified a gene-environment relationship (e.g., parental death, divorce, abuse). According to a prior study, people with low MAOA-uVNTR genotype expression were shown to be more impulsive. However, the research demonstrated that a participant's notion of proper parental care protected them from this effect. The presence of a high expression allele did not affect parental care (Kinnally et al., 2009).

Increasing evidence implies that impulsive behaviours are linked to distinct processes and interactions involving several brain systems rather than being the product of a single biological substrate (Klonsky & Olino, 2008). This is also assumed to be true of mechanisms related to behavioural disinhibition (Nigg et al., 2005), which appears to have little to do with impulsivity as a trait (Gray, 1987). As a result, issues related to repeated impulsive acts could result from several processes interacting or combining. For example, Young et al. (2009) revealed that teenage behaviour disorders are linked to motivational concerns, including excessive risk-taking (associated with reward-seeking) and low fear of punishment.

Factors Affecting Impulsivity

During the school day, students are often impulsive. This impulsiveness usually extends to the home. Genetics and peer acceptability are two more elements that influence impulsivity unrelated to school. ADHD students are notoriously impulsive. ADHD is 80 per cent heritable (Willingham, 2005). As a

result, a child's genetic inheritance has a significant role in whether or not he or she gets ADHD. ADHD is one of the heritable psychiatric disorders (Grimm, Kranz, & Reif, 2020). An ADHD research that looked at twins was conducted. Identical twins share 100% of their DNA, while fraternal twins share 50% of their genes (Chang, Lichtenstein, & Larsson, 2012). If one twin has ADHD, studies show that if the twins are identical, the other is far more likely to have it than if they are fraternal (Joseph, 2000; Levy et al., 1997). Identical and fraternal twins have very similar family lives. As a result, the effect is driven by the more significant common genetic component. Several genes have been identified as possible culprits, most of which are involved in dopamine control (Willingham, 2005).

According to Kovess et al. (2015), the United States has a significantly higher number of children diagnosed with ADHD than, say, France. Because psychologists in the United States regard ADHD as a biological disorder with biological causes, biological medications, such as psychostimulants, are the preferred treatment option. On the other hand, French psychologists regard ADHD as a medical condition with psychosocial and situational roots. Instead of prescribing drugs, French psychologists examine the child's social environment. They opt for psychotherapy and counselling to deal with the problem. The French psychosocial approach includes possible nutritional causes for ADHD-like symptoms, precisely because foods containing artificial colouring and preservatives cause some children's behaviour to worsen (Kovess et al., 2015).

According to Snider (2005), acting out in class may be a child's only means of gaining approval. Wasting time could be a sign of social insecurity or academic failure. A pupil who becomes regarded as the "class clown" (Birdsall & Miller, 2002) frequently results from difficult home life. The role of educators is to figure out why a student chooses to act out in the first place. "The home is often the source of anxiety and tension. Children in alcoholic homes, for example, take on various roles such as scapegoat, caretaker, or clown, and if those roles are supported, they bring them to school, where they use all of the energy in the classroom while depriving others of essential learning time" (Snider, 2005, p.2).

After conducting some independent research, the educator may determine that counselling is the best option for a specific student. "These students' wiring is susceptible, and they internalize and often blame themselves when there is familial dysfunction." They try to compensate most healthily they know how: by being inventive with their comedy" (Snider, 2005, p.2). This unique sense of humour is in and of itself a talent. This skill can be precious in a child's future if the instructor can channel it positively. Many former class clowns now work as comedians and performers (Greengross, Martin & Miller, 2012).

Carol Dweck's concept of learned helplessness has been linked to classroom behaviour (Fincham, 2009). Teacher behaviour might lead to students developing a sense of helplessness. This was because girls in the basic school received higher grades and fewer negative comments. Dweck paid close attention in classrooms to teacher comments. She discovered that nonintellectual input accounted for 45 per cent of the boys' work-related feedback (comments

regarding legible handwriting were provided instead) (Fincham, 2009). Almost all of the feedback for girls focused on its educational value. Although nonintellectual feedback is advised, research suggests that focusing pupils' attention on learning can assist them in overcoming learned helplessness (Fincham, 2009).

Multidimensional Nature of Impulsivity

Even though several impulsivity measurements are connected, impulsivity is not a singular idea. Gray's two-system model of behaviour control has received a lot of attention (Grey, 1970). According to Carver, Sutton, and Scheier (2000), the Behavioural Approach System (BAS) is assumed to be linked to approach behaviour and motivation, while the Behavioural Inhibition System (BIS) is supposed to be linked to behavioural inhibition. The mesolimbic dopaminergic pathways, which also support the personality trait of impulsivity, are thought to be the neural bases of BAS.

The concept of impulsivity heterogeneity was supported by Dickman's distinction between functional and dysfunctional impulsivity in 1990. The former refers to the tendency to behave with less thought than most people when impulsive reacting causes problems, and the latter refers to the tendency to behave with more thought than most people in the same situation. White et al (as reported in Knezevic, 2013) evaluated the impulsivity of more than 400 people. They developed a model that included two distinct but related forms of impulsivity: behavioural impulsivity was more strongly connected to externalising behaviour, as evaluated by inhibitory control tests, while cognitive impulsivity was more

strongly correlated with IQ. Dawe, Gullo, and Loxton (2004) created a two-factor impulsivity model that included incentive drive (disinhibition) and rash impulsiveness (sensation-seeking) in a more recent research.

“Reward-seeking is characterised as having increased sensitivity to pleasant/pleasurable stimuli, much as Gray's extremely sensitive BAS. At the synaptic sites, there is less dopamine inhibition, according to Pickering and Grey (1999) increases behaviour seeking rewards Neurobiological Rough impulsiveness, on the other hand, has been connected to a lack of control over a prepotent reaction to a stimulus or event. Uncontrolled conduct is the result of individual variances in the frontal lobe of the brain (Dawe et al., 2004). In exploratory factor analyses of clinical populations like ADHD children, two impulsivity factors were found. Prepotent response inhibition neuropsychological tests were shown to be associated with ADHD evaluations, indicating a significant inhibitory control component. According to Avila et al. (2004), there was only a slender correlation between the second category of skills—which includes ones like organising and planning ahead and resisting interference—and scores for oppositional defiant disorder.

The concept of impulsivity has been further distinguished in more recent personality research. As an example, (Smith et al., 2008) looked at the similarities and differences of related personality types and created a hierarchical model of impulsivity that included three different personality qualities”. While urgency and sensation-seeking were classified as parts of a higher-order construct, lack of preparation and persistence were recognised as two separate constructions. In

addition, a three-path model of impulsivity was provided by Verheul (2001). “Behavioural disinhibition, stress reactivity, and reward sensitivity are the precursors of antisocial behaviour, an avoidant personality, and sensation seeking.

Although the data described above reveals a wide range of impulsivity causes, an overarching pattern suggests that impulsivity is multidimensional. An empirical study has connected at least three characteristics of impulsivity identified by personality tests to the development of disordered behaviour (e.g., lack of planning, urgency, and sensation seeking). It is yet unknown how these qualities interact over time or whether different measures of impulsivity would reveal additional components (Mobbs, Crépin, Thiéry, Golay, & Van der Linden, 2010; Shin, Hong, & Jeon, 2012; Smith, Lavender, Leventhal, & Mason, 2021)”.

Measurement of Impulsivity Construct

Self-reports and behavioural tasks are the two types of instruments used to measure impulsivity, and while they are meant to measure the same thing, evidence suggests they do not (Cyders & Coskunpinar, 2011, 2012; Sharma, Markon, & Clark, 2014). Despite using several scoring approaches to capture additional state-dependent variables such as those seen in behavioural tasks, this lack of correlation persists (Ellingson, Potenza, & Pearlson, 2018). This conclusion could be attributed to impulsivity's multidimensionality and the task's higher specificity. Participants must weigh their level of agreement with generic statements concerning sometimes complex behaviours to complete self-reports. Individuals who frequently engage in impulsive or dangerous conduct may view

their behaviour as steady and low in impulsivity, as previously stated concerning risk perception (Albert & Steinberg, 2011).

A range of questionnaires to test various facets of impulsivity through personality study have been produced. Based on earlier research and scales (Cyders & Smith, 2008; Whiteside & Lynam, 2001), Whiteside and Lynam (2001) established a complete model of impulsivity, as well as an instrument to test it (the UPPS-P Impulsive Behaviour Scale) (Pilatti, Lozano, & Cyders, 2015). Positive and negative urgency (doing rashly when feeling strongly positive or negative), lack of premeditation (acting without thinking or preparation), lack of perseverance (inability to stay focused on a task and avoid boredom), and sensation seeking are the five categories proposed by the model.

Empirical Review

The review's discussion of earlier data-driven research on students' impulsive conduct is the main emphasis of this section. The influence of impulsive conduct on students' academic performance and the connection between impulsive behaviour in children and the socioeconomic characteristics of their parents are the particular problems that need to be looked into.

Impact of Impulsive Behaviour on Pupils' Academic Performance

Alavi et al. (2019) studied attention, impulse control, gender, and academic achievement. 270 typically developing elementary school students were selected by purposive sampling (142 boys and 128 girls). Children's attention and impulsive control were assessed using a questionnaire that their teachers graded. Their grades also determined a student's academic achievement.

Attention and impulse control were significant factors of academic achievement in this study.

Merrell, Sayal, Tymms, and Kasim (2017) looked into the relationship between inattention, hyperactivity, and impulsivity in five-year-olds and academic achievement in eleven-year-olds. The PIPS on-entry baseline examination was used to test children's early reading and math skills in the quantitative study, which comprised 46,369 students from 1812 English primary schools. According to the study, the degree of inattentive behavior at the age of five was found to have a significant negative direct link with success at the age of eleven. Although hyperactivity was found to be unrelated to success, impulsivity was found to be modestly but positively connected.

Babaeian and Jamshidzadeh (2015) looked at the link between students' impulsivity, timidity, and academic success. The study used a descriptive survey approach with 100 first-graders from Aseman, a town secondary school. Barratt's impulsiveness and Samouei's timidity scales were administered to the respondents. The grades of the students were utilized to assess their progress. The findings revealed that students' impulsivity and timidity have a substantial negative link with their academic progress.

“Several other studies indicated that preschoolers with behavioural disorders had much worse academic skills (including early literacy and numeracy skills) than their non-behavioural counterparts (e.g., Russell A Barkley et al., 2000; Lahey et al., 1998; Rabiner, Coie, & Group, 2000; Shelton et al., 1998; Vaughn, Riccio, Hynd, & Hall, 1997)”. Furthermore, studies have found that

when compared to their peers, children with early behavioural difficulties have language deficiencies (both receptive and expressive) (Campbell, 1995; Gilliam & De Mesquita, 2000; Kaiser, Cai, Hancock, & Foster, 2002; McGee, Partridge, Williams, & Silva, 1991).

Relationship between children's impulsive behaviour and parent's educational background

The impact of a parent's education and personality attributes on their children's disruptive conduct was studied by Japar (2017). The correlational design was approached quantitatively. The researchers looked at three variables: parents' education, personality, and child disruptive behaviour. Data on the variables were collected from 100 children ranging in age from 5 to 7 years old using a questionnaire. According to the findings, the need-aggression aspect, as opposed to the other three, need-succulence, need-dominance, and need-deference, had the most impact on children's disruptive behaviour.

Assari, Caldwell, and Mincy (2018) looked at the link between a family's socioeconomic level at birth and a child's impulsivity at 15 and discovered that Blacks had a lower return. The study looked at SES markers at birth on subsequent impulsivity in Black and White's teens aged 15 in three families. The evidence suggests that the Diminished Return argument holds for the long-term impacts of home affluence on teenager impulsivity. However, 15 years later, no correlations were found between race, mother education, or home structure at the time of delivery and subsequent juvenile impulsivity. Poverty, divorce, a lack of parental education, or teen parenthood are all documented risk factors for

developing externalizing and internalizing difficulties in children (Shaw & Emery, 1988).

According to a research by Torvik et al. (2020), the link between parental educational attainment and a child's ADHD symptoms and academic difficulties could not be attributed to shared family risk factors, although the association with depressive symptoms might.

Gender and Impulsivity

Men have been observed to have more significant impulsive symptoms than women. Men are more likely than women to engage in impulsive behaviour. Men, for example, did better on the Zuckerman Kuhlman Personality Questionnaire's Impulsive Sensation Seeking Scale (McDaniel & Zuckerman, 2003). Additionally, high testosterone levels are linked to sensation seeking, impulsivity, dominance, competition, and sexual excitement, as well as prioritizing short term goals (Archer, 2006).

In order to objectively assess the body of knowledge on gender differences in attention deficit hyperactivity disorder (ADHD), Gaub and Carlson (1997) conducted a meta-analysis of pertinent research based on 18 studies that fulfilled the inclusion criteria. The results showed no gender differences in impulsivity, academic performance, social functioning, fine motor skills, or parental depression. When ADHD boys and ADHD girls were compared, ADHD girls had more intellectual deficits, less hyperactivity, and lower rates of other outward behaviours.

According to research (Moffitt & Caspi, 2001), boys had higher levels of impulsivity than girls on average. However, there is no evidence that this occurs in the scientific literature. Deficits in self-control and bad peer relationships (together with temperamental qualities of under-control and weak constraint) “have three crucial elements, that is, I they predict antisocial behaviour in both sexes (ii) males are more likely to experience them,” according to Moffitt et al. (iii) clarifies the gender divide.

Furthermore, according to Greenberg and Waldmant (1993), impulsivity is more strongly related to the male sex, and continuous performance assessments demonstrate that boys tend to be more impulsive, though this sex difference diminishes with maturity. From an evolutionary and neuro-biological standpoint, males are more impulsive than women, who should have acquired a better capacity to control preo-potent impulses (Weinstein & Dannon (2015). Literature demonstrates that women excel in impulsivity-measuring cognitive tasks like delayed gratification and delayed discounting, particularly in early life. The developmental, neuro-pharmacological, and harmonic changes that occur throughout adolescence and adulthood are related to gender differences in impulsivity. Finally, (Bevilacqua 2013, Wong 2013), in their studies explain that genetic role in impulsivity could explain sex differences in impulsivity in the future.

Chapter Summary

The theoretical assumption or model, conceptual reviews, and empirical implications of primary school children’s impulsivity and its impact on academic

achievement were all highlighted in this chapter. In terms of the numerous dispositions, impulsivity (or impulsiveness) is a predisposition for acting on the spur of the moment, with minimal planning ahead of time or no thought, meditation, or consideration of the consequences. The chapter elaborated on and linked Gray's model's applicability to impulsivity in primary school students and its impact on academic achievement in the Ghanaian context. According to Gray's theory, various contextual factors may influence trait impulsivity and individual differences (such as parents' educational background, subjects learn in school, gender). According to the researcher's theory, when all of these factors are not effectively monitored and regulated, it may harm the kids' academic performance.

Using concepts, ideas, and explanations from relevant writers, the chapter discussed the exergies impulsivity of elementary school students. In general, students are impulsive both during school and at home. Genetics and peer acceptance may also have an impact on impulsivity.

Finally, the chapter presented empirical research on primary school children's impulsivity and its impact on academic achievement from local and international literature. The study discovered that attentiveness and impulse control both predicted academic achievement and that there is likely a negative relationship between students' impulsiveness and shyness and their academic achievement. Finally, several research discovered that disruptive behaviour is influenced by the education and personality of the parents and that boys are much more impulsive than girls, despite no difference in inattention. Overall, the

chapter gave me a good sense of the scope of the study's problem and the gaps that needed to be filled.



CHAPTER THREE

RESEARCH METHODS

Introduction

This research aims to determine how common impulsivity is among primary school pupils and how it impacts their academic performance. Obtaining relevant data that may be used to solve a given problem is universally regarded as critical to any research project's quality. “The validity and reliability of data collection and findings are determined by the quality of these processes. The methodology utilized in the research endeavour is covered in this chapter. Research design, sample and sampling procedure, population, data gathering instrument, data collection protocol, ethical problems, data processing, and analysis are the subheadings that define the research methodologies and processes used in the study”.

Research Design

A study design can be defined as a research's plan, structure, and strategy for identifying the tools needed to address an issue and reduce variance (Creswell & Clark, 2017; Kothari, Sibbald, & Wathen, 2014). The technique for gathering and analyzing relevant data and how all of this will be used to answer the research questions are all outlined in a study design (Dawson, 2002; Grey, 2014). This indicates that a study design is a set of instructions for collecting, analyzing, and interpreting data for a researcher.

The study employed a quantitative approach using descriptive survey design. According to Burgess (2002), when choosing a research method, two

things should be considered: the material relevant to the researcher's problem of interest and the types of processes appropriate to the topic under examination.

“According to Burgess, there is no one-size-fits-all approach to conducting educational research, and the method chosen and used should be appropriate for the issue or topic at hand. According to Vulliamy, Lewin, and Stephens (1990), the method of social research is not entirely founded on underlying philosophical views”. As a result, other critical elements must be considered, such as the research's specific goals and the viability of alternative strategies in the inquiry setting, i.e., the environment in which the observations are made. According to Fraenkel et al. (2012), surveys can provide various data from the study's participants. Surveys allow for the simultaneous investigation of numerous subjects, according to Nworgu (2006).

The researcher used a descriptive survey to collect data on the prevalence of impulsivity and its influence on the academic performance of primary school children. A descriptive survey was used to determine and search for information about the issue, and results from the questionnaire were incorporated. Data from students, teachers, and parents were validated and corroborated, resulting in a complete picture of the topic at hand (Creswell & Clark, 2011).

The descriptive survey approach has the benefit of clearly demonstrating the incidence of impulsivity among primary school pupils and its influence on their academic performance for this study. However, there are drawbacks in every system (Sarantakos, 2005). To begin with, survey questionnaires are challenging to create, and their usefulness is dependent on persuading respondents to seriously

and honestly answer questions (Fraenkel et al., 2012). Another notable disadvantage is the amount of time and effort required to deliver and collect surveys and obtain sufficient replies from participants (Gray, 2009).

Study Area

The Cape Coast Metropolis was a part of the research area. As seen in Figure 2, the Gulf of Guinea is bordered on the south by the Cape Coast Metropolis. It has 122 square kilometres, with the furthest point being Brabedze, about 17 kilometres from Cape Coast, the Central Regional capital. According to the Ghana 2021 Population and Housing Census, the Cape Coast Metropolis has 189,925 residents, accounting for 6.6 per cent of the region's total population. Males make up 48.9% of the population, while females make up 51%. Rural communities house 23% of the population. The sex ratio (number of men per 100 women) in the city is 95. The share of urban youth (under 15 years) is 28.4%, indicating a demographic pyramid with a relatively broad base and a small number of seniors (60 years and older) (4.5 per cent). Males have a lower age dependency ratio (48.2) than females in the metropolitan area, 49.1. (49.9). In the recent population census, Cape Coast metropolis recorded 19,350 children of which 9,877 were girls and 9,473 were boys. These are children from 5 to 9 years. Cape Coast is recognised as Ghana's educational cradle, yet no studies on the frequency of impulsivity have been conducted there. As a result, a research location was chosen.

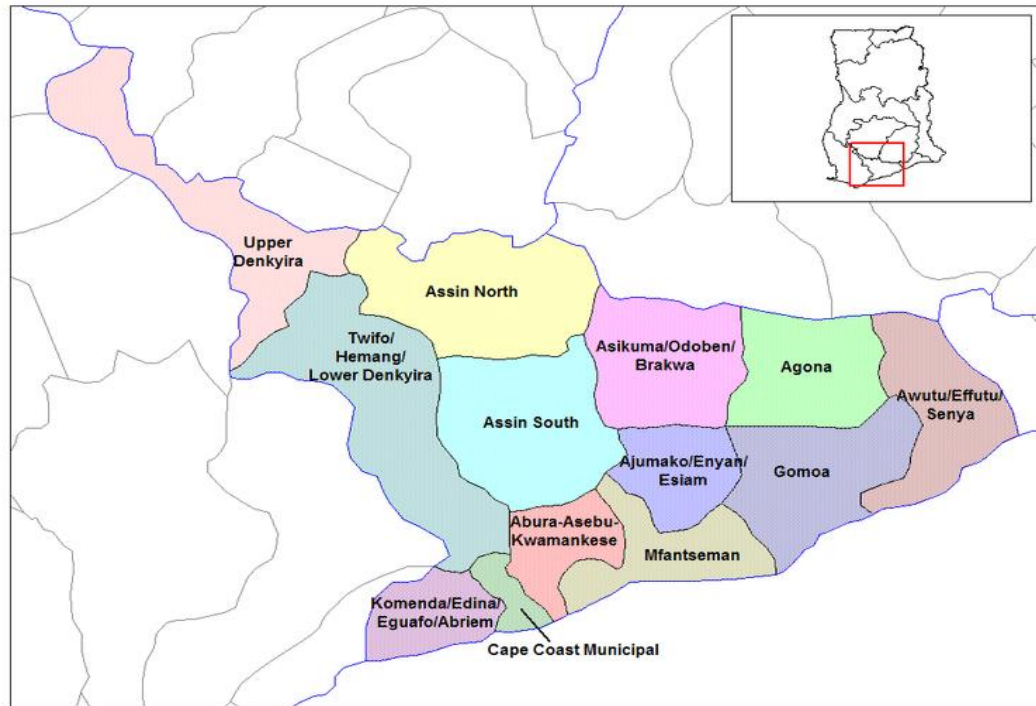


Figure 2: Map of Cape Coast Metropolis

District Repository of Ghana, 2020.

Population

All units or individuals of interest, according to Hanlon and Larget (2011), make up a population. This means that a population encompasses all of the subjects which are of interest to the researcher which she wishes to explore. Five public primary schools in the Cape Coast Metropolis served as the study's target demographic. Two out of five circuits were used to choose these five public schools from the metropolis. The study's accessible population consisted of primary five pupils from five primary schools who had been specifically selected for the study. The schools were chosen on purpose since the researcher required schools with all participants having done three terms of the previous year's examinations (Class 4) who had just been admitted into class five and were

willing to participate in the study. Basic Five students from these selected schools created a better demographic for the study, as far as the study's goal is concerned because they had just been admitted in that class from class four. According to Nwamuo (2010), impulsivity is fully manifested in primary 4 pupils. However, primary five pupils were used because they had just been admitted in primary five, and the researcher had all examination scores that they had done in primary four to assess their academic performance. All parents and teachers of all pupils who participate in the study also formed part of the population.

Sample and Sampling Procedure

The appropriateness of technique and instrumentation and the sampling approach used to determine the quality of any research (Cohen et al., 2007; Cohen & Arieli, 2011). The study included 34 impulsive and 168 non-impulsive students from primary five of the five public elementary schools.

The sample for the study was chosen using a multi-stage sampling method. First, as previously indicated, the five schools that participated in the study were chosen using a purposive selection method. Second, using a census technique, the study enlisted the participation of all Class Five students in each of the five schools chosen. There were 256 participants in these five schools, and 202 of them completed all three sets of surveys, for a completion percentage of 78.9%. After analyzing the findings of all three instruments, 34 students were classified as impulsive, while the remaining 168 students were classified as non-impulsive. Pupils who scored the required number on ALL the three instruments (NICHQ, IRQC, CIFP) qualified as impulsive. Pupils who scored on just one or

two of the instruments used were not considered as impulsive. A pupil must pass all the three instruments to be considered as impulsive. Table 1 shows the gender distribution of the responses.

Table 1: Gender of the Participants (Pupils)

Variables	Frequency No)	Percent (%)
Male	95	47.0
Female	107	53.0
Total	202	100.0

Source: Field of Data, 2021

Data Collection Instruments

The data collection instrument used for the study were the Vanderbilt Assessment Scale, the Impulsive Related Questionnaire for Children, the Checklist for Parents and pupils Test Scores of English, Mathematics and Science .

National Initiative for Children's Healthcare Quality (NICHQ)

For this study, the NICHQ (Appendix A) was used, and teachers in primary four were given it to rate all of the students who had just left class four to class five. The American Academy of Paediatrics produced the NICHQ questionnaire (2002). There are 26 components on this instrument, divided into three divisions (A, B & C). Section A collects data on the teacher's demographic background, while Section B collects data on objects that provide data on indicators of impulsivity in children and is based on a 4-point Likert scale with responses ranging from "very often-4, often-3, occasionally-2, and never-1. The teacher was instructed to check the box next to the column that best characterizes

the student. To be classified as impulsive, a child had to receive at least 10 positive replies, or very often-4 and "often-3.

The final section (Section C) assessed the child's academic performance and other classroom behaviours such as peer relationships, organizational skills, disruption, and assignments. This part was rated on a scale of one to five, with four and five indicating problem/problematic conditions. He or she must obtain at least 4 points to qualify as an impulsive child.

Impulsive Related Questionnaire for Children (IRQC)

The Impulsive Related Questionnaire for Children was adopted from Nkrumah (2015) for pupils to rate themselves on impulsivity characteristics. The IRQC (see Appendix B) is a questionnaire that allows the respondent to read the question and choose their response without influencing their impulsivity. During testing sessions, children, especially those with impulsive lose interest, and their sensitivity to distraction usually hinders them from completing undesired activities such as lengthy self-reports (Geurten, Catale, Gay, Deplus, & Billieux, 2021). Two sections make up the IRQC. Section A gathered information on the demographic characteristics of children. Symptoms of impulsivity were identified in Section B and it contained 20 questions. All of the items in Section B received a score of 2 or 1 for 'frequently or occasionally. After it was explained to the child, they ticked the column that matched their descriptors. It took roughly 25 minutes to complete the workout. The pupils were given the free will to respond to the questions without any interference from the teachers and the researcher and the questionnaires were collected shortly after they have finished answering them. The

items were totalled for a maximum of 40 points and a minimum of 20. When a pupil gets at least 30 points, he or she is considered impulsive.

Checklist for Impulsiveness for Parents (CIFP)

The researcher also used the Checklist for Impulsiveness For Parents to mark the many aspects of impulsive behaviour displayed by their children. The CIFP (see Appendix C) consisted of items that corresponded to numerous impulsive traits exhibited by pupil's at home. There were two sections in the CIFP. Section A was looking for demographic information on the parents. Section B contained 20 items on impulsive features measured on a 4-point Likert scale: Never-1, Occasionally-2, Frequently-3, and Extremely Frequently-4 are the four options. The scale ranged from 20 to 80 points, with 20 lowest and 80 highest. The child scored at least 40 points to match an impulsive description.

Test Scores of English, Mathematics and Science

Pupils three terms test scores on three subjects that is English, Maths and Science were used to assess their academic performance. A total of 300% of which a pupil who scores 300%-201% is recorded as high score, 200%-101% as average score and 100-0% as low score.

Validity and Reliability of Instrument

The three data collection instruments used in the study (NICHQ, IRQC, and CIFP) were all well-known standardised tools. The reliability coefficient of the NICHQ was 0.84, the IRQC was 0.87, and the CIFP was 0.86. Regardless, the surveys were sent out to field specialists (reviewers) for feedback and suggestions. My supervisors examined the instruments once more. To confirm

the instruments' content authenticity, several steps were conducted. The items and language were acceptable to the participants, and the data gained could be used to make informed decisions about the issues under inquiry (Sarantakos, 2005).

Following data collection, each instrument underwent a confirmatory reliability analysis. NICHQ, IRQC, and CIFP, respectively, had coefficient alpha values of 0.92, 0.73, and 0.85. On a scale of 0.00 (very unreliable) to 1.00 (perfectly reliable), reliability coefficients are calculated (Gray, 2009). Acceptable reliabilities for research purposes are alpha coefficient values ranging from 0.62 to 0.77 and exceeding the criterion of 0.60. (Field, 2013; Gray, 2009; Henderson, Fisher, & Fraser, 1998; Pallant, 2016).

Procedure for Data Collection

A formal introductory letter from the Department of Education and Psychology was received for data collection before the researcher proceeded to the field to gather the information needed for this study (see Appendix D). The Institutional Review Board (IRB) of the University of Cape Coast provided ethical clearance (see Appendix E). I began the data collection process with two qualified research assistants. The NICHQ was provided to the teachers, and they were expected to answer for all of the students in their class. The items on the scale were introduced to the teachers, and they were given four weeks to complete and return the questionnaire.

The parents were also given the Checklist for Impulsiveness For Parent. The researcher invited the parents to the school, and the instrument was explained to them. Parents who could not come to the school were called on the phone, and

the questionnaires were explained to them. The researcher followed children whose parents neither came nor had a telephone to their houses. Parents were instructed to check the box next to the column that best represents the child under assessment. Pupils were given the IRQC to fill out and return. They were under the researcher's supervision, and two highly experienced research assistants. The researcher trained the research assistants for a week to ensure they understood the research and collected the appropriate data.

Teachers, students, and parents were given a total of 256 questionnaires to fill out. The participants returned questionnaires as soon as possible or on the agreed-upon date. However, there were cases of non-responses from the parents, and these were abandoned by the researcher after several attempts to get back these questionnaires failed. This resulted in a response rate of 78.9%. In total, two months was used for data collection.

Data Processing and Analysis

The SPSS (Version 25.0) software was employed to code and serialize the completed study instruments. Each pupil's questionnaire was matched with that of his/her parents and teachers response and coded with the same serial number. The procedure included coding, organizing, characterization, analysis, cross-tabulation, and concluding. The data was then evaluated using descriptive statistical methods (percentages, means, standard deviations, and graphs when needed) and inferential statistical methods (independent samples t-tests, linear regression, Chi-square, and Pearson product-moment correlation coefficient). The focus of the analysis was the research questions and hypotheses. The

researcher used frequencies, percentages, averages, and standard deviations to analyze study question one.

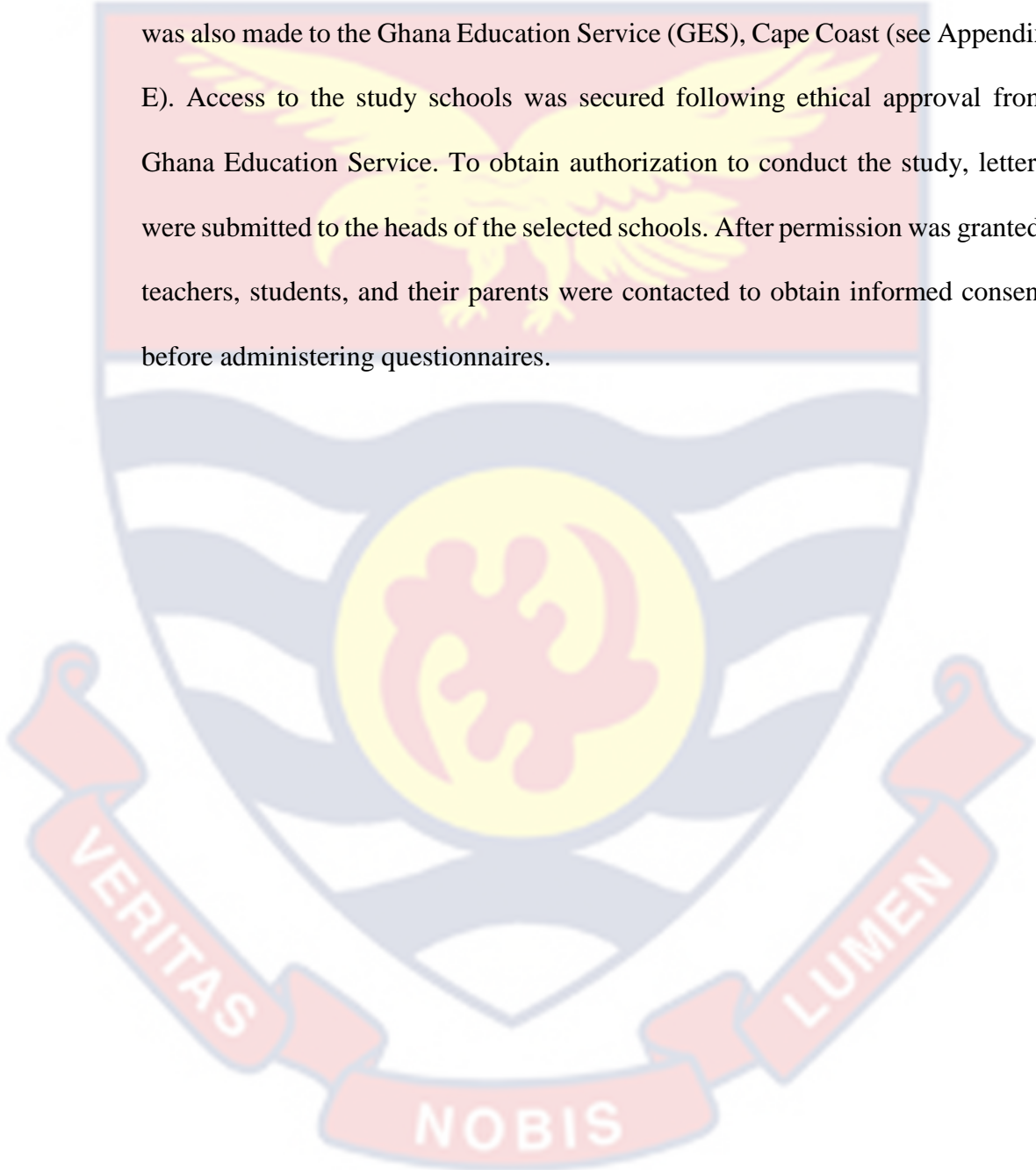
The chi-square association test was used to look into study question two and hypothesis two. The Chi-square test was used because all of the variables were categorical. The Pearson product correlation coefficient was utilised to examine study question three, which sought to discover more about the impact of learners' impulsivity on their academic progress. The independent samples t-test was used to investigate study hypotheses one and four. This study evaluated the mean scores of two groups to see any significant differences. Hypotheses two and three were then examined using the Pearson correlation coefficient. The amount and direction of the association between the independent and dependent variables were determined using the Pearson correlation coefficient on children's impulsivity and their performance in English and mathematics (test scores for three terms). The correlation was looked at a .05 level of confidence.

Ethical Consideration

“At the University of Cape Coast, ethical approval is required for all research activities. A formal request for ethical permission was sent to the university's Institutional Review Board (IRB). Detailed statements outlining the nature of the study, how data would be obtained and used, and participant participation were submitted to the IRB for evaluation and approval, as required by the IRB”. Participants' information sheets and authorization papers were among the documents provided. Members were updated that the information

received would be kept private and confidential. All identities and identifying details were replaced with pseudonyms in every oral, written, and public report.

Since data collection involved parents of the pupils, an ethical approval was also made to the Ghana Education Service (GES), Cape Coast (see Appendix E). Access to the study schools was secured following ethical approval from Ghana Education Service. To obtain authorization to conduct the study, letters were submitted to the heads of the selected schools. After permission was granted, teachers, students, and their parents were contacted to obtain informed consent before administering questionnaires.



CHAPTER FOUR

RESULTS AND DISCUSSIONS

Introduction

“The findings of the analysis of the questionnaire data in light of the study's objectives are presented in this chapter. The study's major goal was to look at how common impulsivity is in Ghana and how it affects kids' academic performance. Three research questions and five study-related hypotheses were answered in the process of data analysis and interpretation. Means, standard deviations, frequencies, and percentages were used as descriptive statistics to analyse the data, while independent sample t-tests, Pearson product moment correlations, and Chi-square tests of association were used as inferential statistics to analyse the data. The respondents' demographic features, such as their gender and whether or not they have impulsive students, are described in the first section of this chapter. Frequency and percentage calculations were used to assess the demographic data that was gathered. Based on the research questions and hypotheses developed for the study, the research results are reported in the second section.

Demographic Characteristics of Parents

The distribution of parents' demographic characteristics is presented in Table 2. As seen in Table 2, majority of the parents who responded to the questionnaire were females (65.8%). Males constituted about 34% of the parents surveyed. About 47% of all parents were above 41 years of age. In terms of educational background, only about 9.4% had completed tertiary education”.

Table 2: Characteristics of Parents (N = 202)

Characteristic		Frequency	Percentage
Gender	Male	69	34.2
	Female	133	65.8
Age (in years)	21-30	24	11.9
	31-40	83	41.1
	41-50	54	26.7
	51-60	27	13.4
	61+	14	6.9
Educational background	Primary	17	8.4
	JHS	56	27.7
	SHS	34	16.8
	MSLC	10	5.0
	Tertiary	19	9.4
	None	65	32.2

Source: Field Data, 2021

Research Question One

What is the prevalence of impulsivity among primary school children?

The first research was aimed to find out how common impulsivity was among primary school pupils in the schools studied. The IRQFC, CIFP, and NICHQ were used to collect data from pupils, parents, and teachers to answer this question. The collected data were assessed, and the pupils were graded on all the three measures (IRQFC, CIFP, and NICHQ). Based on the results obtained,

students were categorised as impulsive and non-impulsive as indicated in Table 3.

Table 3: Number of Pupils with or without Impulsivity

Category	Frequency (No)	Percent (%)
Impulsive (P)	34	16.8
Non-Impulsive (NP)	168	83.2
Total	202	100.0

Source: Field Data, 2021

The results in Table 3 shows that 34 pupils were identified as impulsive out of a total of 202 pupils who took part in the survey. The figure represents about 17 % of the pupils used in the current study, which shows that impulsivity was more prevalent among primary school children who participated in the study.

Research Question Two

What is the relationship between pupils' levels of impulsivity and parents' educational background?

The purpose of this question was to investigate the association, if any, between parents' educational background and their children's levels of impulsivity. The analysis was carried out using the Chi-square test of association. To analyse the data obtained, students' impulsivity scores under review were re-coded into three categories, namely low (for scores 120 – 136), medium (for scores 137 - 144), and high (for grades 145+). The coded categories were cross-tabulated, and results presented in Table 4.

Table 4: Percentage Cross-tabulation of Educational Background Levels of Impulsivity

Edu background		Level of the Impulsivity			Total
		Low (120-136)	Medium (137-144)	High (145+)	
None	Count	1	0	0	1
	Expected Count	.4	.4	.3	1.0
	% within educational background	100.0%	0.0%	0.0%	100.0%
	% within impulsivity levels	8.3%	0.0%	0.0%	2.9%
	% of Total	2.9%	0.0%	0.0%	2.9%
Primary	Count	6	2	5	13
	Expected Count	4.6	4.6	3.8	13.0
	% within educational background	46.2%	15.4%	38.5%	100.0%
	% within impulsivity levels	50.0%	16.7%	50.0%	38.2%
	% of Total	17.6%	5.9%	14.7%	38.2%
JHS	Count	0	3	3	6
	Expected Count	2.1	2.1	1.8	6.0
	% within educational background	0.0%	50.0%	50.0%	100.0%
	% within impulsivity levels	0.0%	25.0%	30.0%	17.6%
	% of Total	0.0%	8.8%	8.8%	17.6%
SHS	Count	3	5	1	9
	Expected Count	3.2	3.2	2.6	9.0
	% within educational background	33.3%	55.6%	11.1%	100.0%
	% within impulsivity levels	25.0%	41.7%	10.0%	26.5%
	% of Total	8.8%	14.7%	2.9%	26.5%
MSCL	Count	1	1	0	2
	Expected Count	.7	.7	.6	2.0
	% within educational background	50.0%	50.0%	0.0%	100.0%
	% within impulsivity levels	8.3%	8.3%	0.0%	5.9%
	% of Total	2.9%	2.9%	0.0%	5.9%
Diploma	Count	1	1	0	2
	Expected Count	.7	.7	.6	2.0
	% within educational background	50.0%	50.0%	0.0%	100.0%
	% within impulsivity levels	8.3%	8.3%	0.0%	5.9%
	% of Total	2.9%	2.9%	0.0%	5.9%

Tertiary	% of Total	2.9%	2.9%	0.0%	5.9%
	Count	0	0	1	1
	Expected Count	.4	.4	.3	1.0
	% within educational background	0.0%	0.0%	100.0%	100.0%
	% within impulsivity levels	0.0%	0.0%	10.0%	2.9%
Total	% of Total	0.0%	0.0%	2.9%	2.9%
	Count	12	12	10	34
	Expected Count	12.0	12.0	10.0	34.0
	% within educational background	35.3%	35.3%	29.4%	100.0%
	% within impulsivity levels	100.0%	100.0%	100.0%	100.0%
	% of Total	35.3%	35.3%	29.4%	100.0%

Source: Field Data (2021)

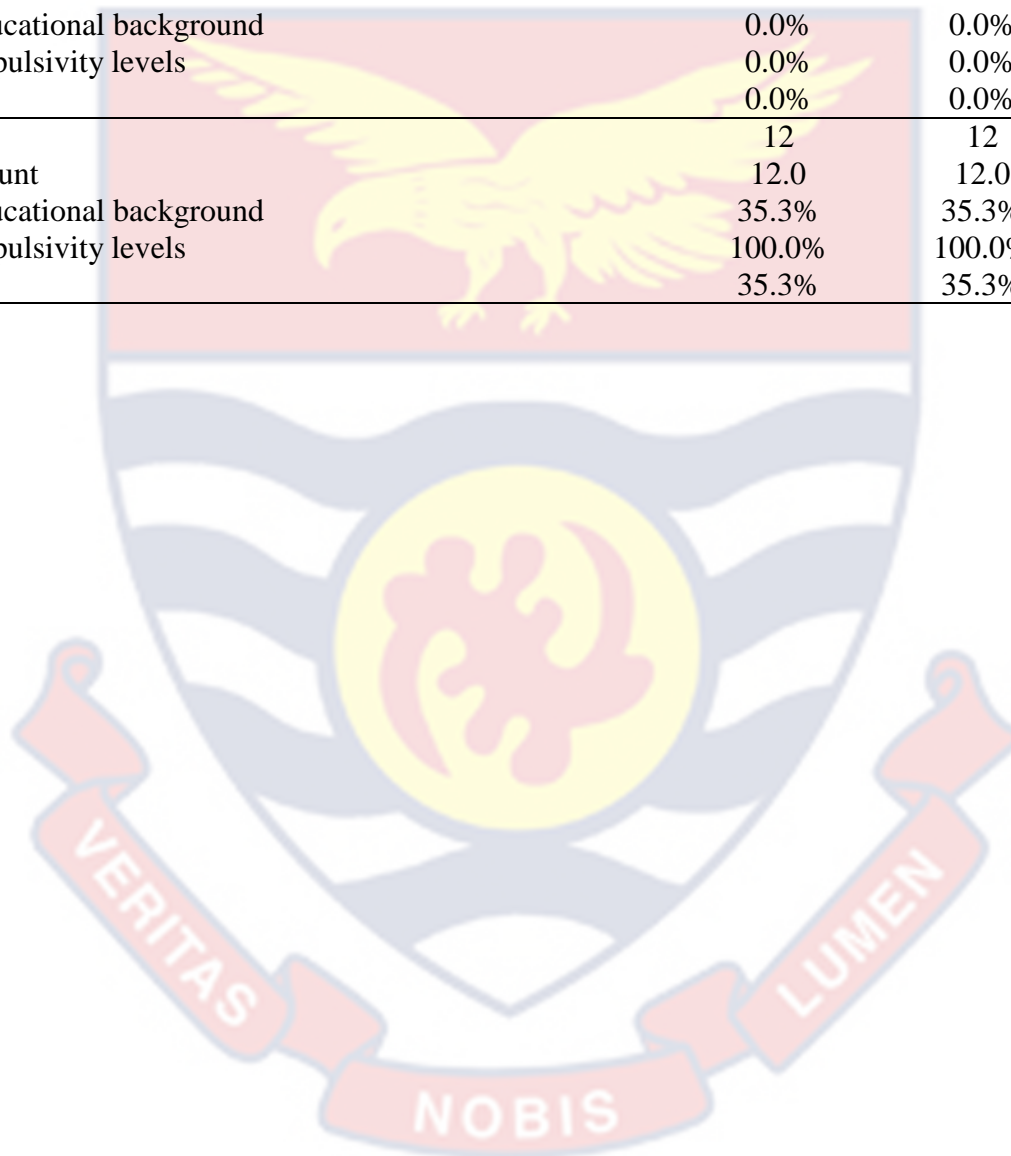


Table 4 presents the percentage cross-tabulation of impulsivity and educational levels of the parents. Concerning the low level of impulsivity (120-136), 2.9% of the pupils were impulsive when their parents were not educated. Also, 17.6% of the pupils were impulsive when their parents had primary education, while 8.8% were impulsive when their parents had SHS education. In the second category of the medium level impulsivity (137-144), it was evident that 5.9% of the pupils were impulsive when their parents had primary education. While 8.8% of pupils were impulsive when their parents had JHS education, 4.7% were impulsive when their parents had SHS education. With tertiary, 0.0% of pupils were impulsive.

On the last category of a high level of impulsivity (145+), it was found that 14.7% of the pupils were impulsive when their parents had primary education. While 8.8% of pupils were impulsive when their parents had JHS education, 2.9% were impulsive when their parents had SHS education. Furthermore, with tertiary, 2.9% of pupils were impulsive. The Chi-square results for the observed differences in the percentage cross-tabulation (Table 4) are presented in Table 5.

Table 5: Chi-Square Tests Association between Educational Background of Parents and Levels of Impulsivity of the Pupils

	χ^2 Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	13.588 ^a	12	.328
Likelihood Ratio	17.418	12	.135
Linear-by-Linear Association	.005	1	.943
Eta value			.473
N of Valid Cases	34		

a. 21 cells (100.0%) have an expected count of less than 5. The minimum expected count is .29.

The Chi-square results shown in Table 5 indicate the observed differences in the percentage cross-tabulation (Table 4) were not significant. As presented in Table 4, the recorded Pearson Chi-Square value was not significant at .05 ($\chi^2 = 13.588^a$, $df = 12$, sig. .328, $Eta = .473$, $n = 34$). The Likelihood Ratio was also not significant at .05 ($\chi^2 = 17.418$, $df = 12$, sig. .135, $Eta = .473$, $n = 34$). The Linear-by-Linear Association value was also not significant at .05 ($\chi^2 = .005$, $df = 1$, sig. .943, $Eta = .473$, $n = 34$). The results suggest that no significant association exist between educational background of parents and pupils' levels of impulsivity. Thus, there is no relation between educational background of the parents and the levels of impulsivity of the pupils.

Research Question Three

What is the impact of impulsivity on pupils' academic performance?

The third research question was intended to find out how impulsivity affected students' academic achievement. The question aimed to determine how much impulsivity could explain and account for students' academic performance variation. Pearson product-moment correlation coefficient was used to analyse this question. In a first assessment, normality, linearity, and homoscedasticity assumptions were all good, with no flaws. The normality probability plots and residual scatterplot were constructed to test for normality, linearity, and homoscedasticity, with the findings shown in Figures 3 and 4.

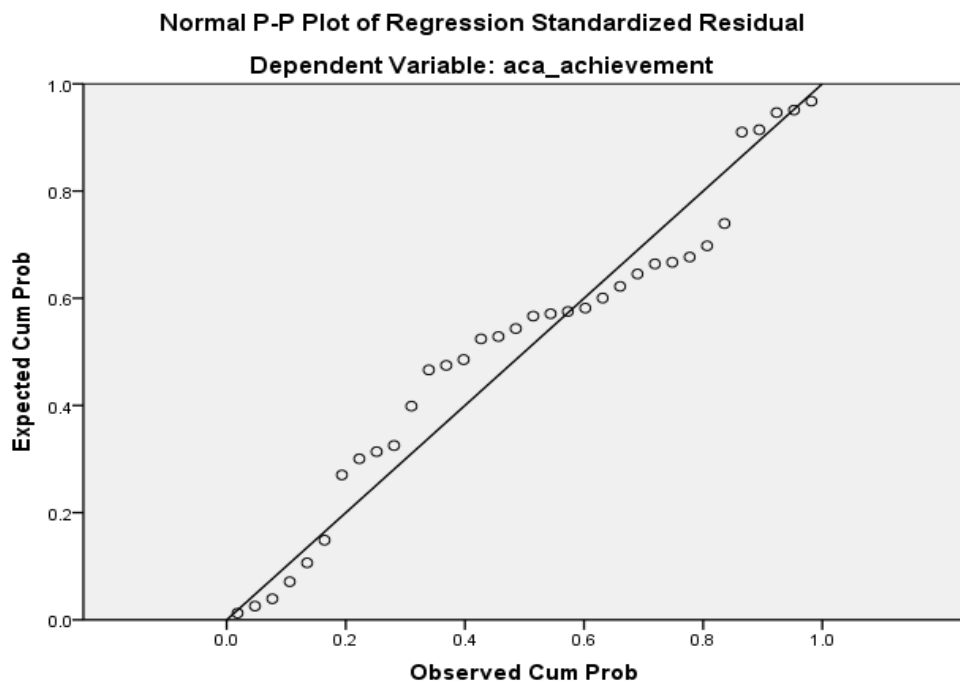


Figure 3: Normality probability plots

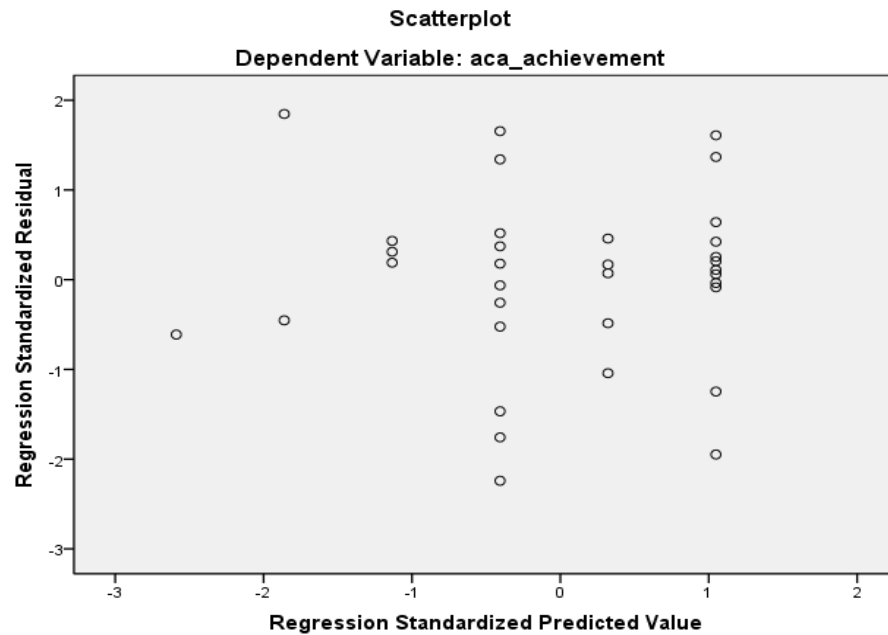


Figure 4: Residual scatterplot

The residual scatterplot and normalcy probability plots show no significant deviation from normality (see Figure 3 and Figure 4). The points in the normality probability plots were about rectangularly distributed, whereas the residuals in the scatterplot were relatively diagonal lines running from bottom left to top right (Field, 2013; Pallant, 2016).

The Pearson product-moment correlation co-efficient results showed a significant negative relationship with academic performance, $r(34) = -.333$, $p = .027$. The coefficient of determination (r^2) value indicates how much of the variance independent variable (pupils' academic achievement) is explained by impulsivity, the independent (predictor) variable. In this case, the value of r^2 is .1109. Expressed as a percentage, this means that impulsivity explains about 11.1 % of the variance in pupils' academic achievement. In order words, holding all other factors constant, impulsivity accounts for only about 11 % of the differences in pupils' achievement.

About 90% of the variation in pupils' academic performance cannot be explained by impulsivity. There might be several other factors that need to be explored.

“Research Hypothesis One

H₀₁: There is no significant gender difference in the academic performance of pupils with impulsivity.

In the first research hypothesis, it was examined if impulsive students who were male or female performed significantly differently academically. An independent samples t-test was found appropriate for the study in order to accomplish this. Based on the presumption that the researcher wanted to determine whether there are statistically significant differences between the mean scores in the two unrelated groups or independent variables (males and females) with regard to their achievement/performance (dependent variable), this statistical tool was chosen”. To test for normality and homogeneity of variance, preliminary assumptions were made (Field, 2013; Pallant, 2016). The result is presented in

Figure 5.

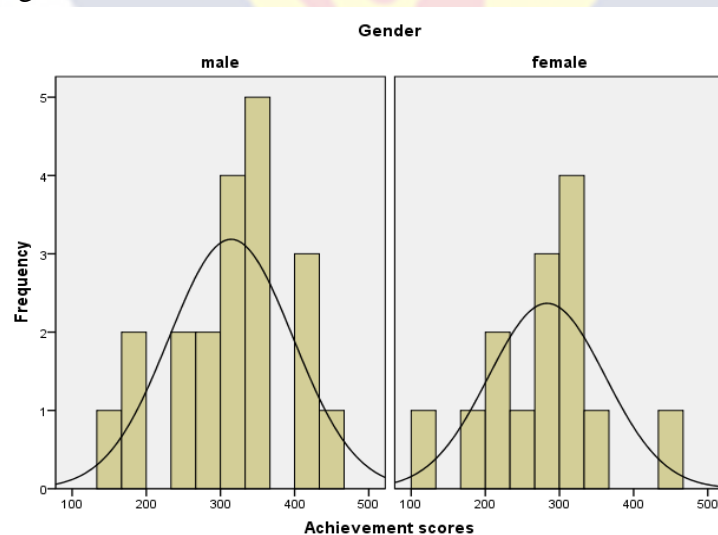


Figure 5: Assumption testing for normality of data

“Figure 5 shows no violations. A histogram with normal curve for example, was used to inspect the distribution of scores on the dependent variables (Tabachnick & Fidell, 2007). Skewness was not a problem and produced no cause for concern. Thus, the dependent variables were normally distributed within each group (gender). To test for the homogeneity of variance, the Levene’s test for homogeneity of variances was conducted and the result is presented in Table 6

Table 6: Homogeneity of Variances Test Results (HVT)

Levene Statistics	Df	Cal. t-value	Sig. value	Remarks
.89	32	1.096	.767*	Equal Variances Assumed

Source: Field Data (2021) *Significant difference exists at $p \leq .05$, $n = 34$, $CI=95\%$

As shown in Table 6, Levene’s test for homogeneity of variances did not record a significant value ($p = .767$). This indicates that the variability of scores for each group (males and females) is similar, and therefore variances are assumed equal based. To explore differences in performance of pupils with impulsivity, independence t-test was used. This is presented in Table 7 below.

Table 7: Independent Samples T-Test on Differences in Performance of Pupils with Impulsivity

Variable	Group	N	Mean (M)	Std. dev. (SD)	t	p-value
Achievement performance	Male	20	314.30	83.49	1.096	0.281*
	Female	14	283.14	78.63		

*Not significant, $p > .05$

degree of freedom (df) = 32”

Table 7 shows that the results are statistically insignificant, [$t(32) = 1.096$, $p = .281$], despite descriptive differences in the mean scores. That is, on the average, male students with impulsivity ($M = 314.30$, $SD = 83.49$) and female student with impulsivity ($M = 283.14$, $SD = 78.63$) did not differ in their performance. The results imply that no significant difference exists between male and female impulsive students regarding their academic performance.

Research Hypothesis Two

H₀₁: There is no significant difference between boys and girls in their tendency to become impulsive.

Gender differences in impulsivity and how students react to school activities have been found in the literature. In the Ghanaian context, however, it appears that very little is known. Hypothesis two was examined at the .05 alpha level of significance to see a significant association between gender and impulsivity in primary school pupils. The goal of this hypothesis was to find out if impulsivity was gender-dependent. For this reason, the Chi-square test was used. According to the Chi-square test language, are the variables (gender and impulsivity) dependent or independent? The results of cross-tabulating the two categorical variables may be found in Table 8.

Table 8: Chi-Square Cross-tabulation Analysis of Impulsivity Dependency on Gender

		Student impulsivity			
		Yes	No	Total	
Gender	Male	Count	20	75	95
		Expected Count	16.0	79.0	95.0
		% within gender	21.1%	78.9%	100.0%
		% within student impulsivity	58.8%	44.6%	47.0%
		% of Total	9.9%	37.1%	47.0%
	female	Count	14	93	107
		Expected Count	18.0	89.0	107.0
		% within gender	13.1%	86.9%	100.0%
		% within student impulsivity	41.2%	55.4%	53.0%
		% of Total	6.9%	46.0%	53.0%
Total	Count	34	168	202	
	Expected Count	34.0	168.0	202.0	
	% within gender	16.8%	83.2%	100.0%	
	% within student impulsivity	100.0%	100.0%	100.0%	
	% of Total	16.8%	83.2%	100.0%	

Pearson Chi-square = 2.283 Asymp. Sig. (2-sided) = 0.131

Table 8 shows that 21.1% of males were impulsive, whereas 13.1% of females were impulsive. Regarding percentage within student impulsivity, that is. For students with impulsivity, the majority (20, representing 58.8%) of pupils with impulsivity were males, whereas 14, representing 41.2%, were females. The Pearson Chi-Square value was 2.283, with an associated significance level of .131. The Sig. value must be less than .05 or 0.5 to be considered significant. In this case, the value of .131 is larger than the alpha value of .05 therefore, the result is not

significant. This suggests that the proportion of impulsive male students is similar to that of impulsive female students. As a result, among the primary school students who took part in the study, there was no association between impulsivity and gender.

“Research Hypothesis Three

H₀₂: There is no significant relationship between children’s impulsivity and their performance in the English language.

It is evident from reading earlier studies in a range of geographical and contextual settings that a student's impulsivity may affect or predict how well they would achieve in English. This led the researcher to look into if there was a connection between Ghanaian children's impulsivity and their proficiency with English. The Pearson product-moment correlation coefficient (PPMCC) was used for the study.

Between +1 and -1 is the range of the Pearson correlation coefficient (r). No association exists if the values of both variables are 0. When the value of one variable increases, the value of the other variable also increases, which is shown by a number larger than zero. A value less than 0 denotes a negative connection, meaning that when one variable's value increases, the value of the other variable decreases. The degree and direction of the link between the variables in this research (impulsivity and English language proficiency) were determined using the correlation coefficient (r). The association was looked at with a.05 degree of confidence. Checking the homoscedasticity assumption was done while running the PPMCC analysis”. The outcomes of the normalcy assumption are shown in Figure

6. In the course of the Pearson Product Moment Correlation Coefficient (PPMCC) analysis, the homoscedasticity assumption was established. The outcomes of the normalcy assumption are depicted in Figure 6.

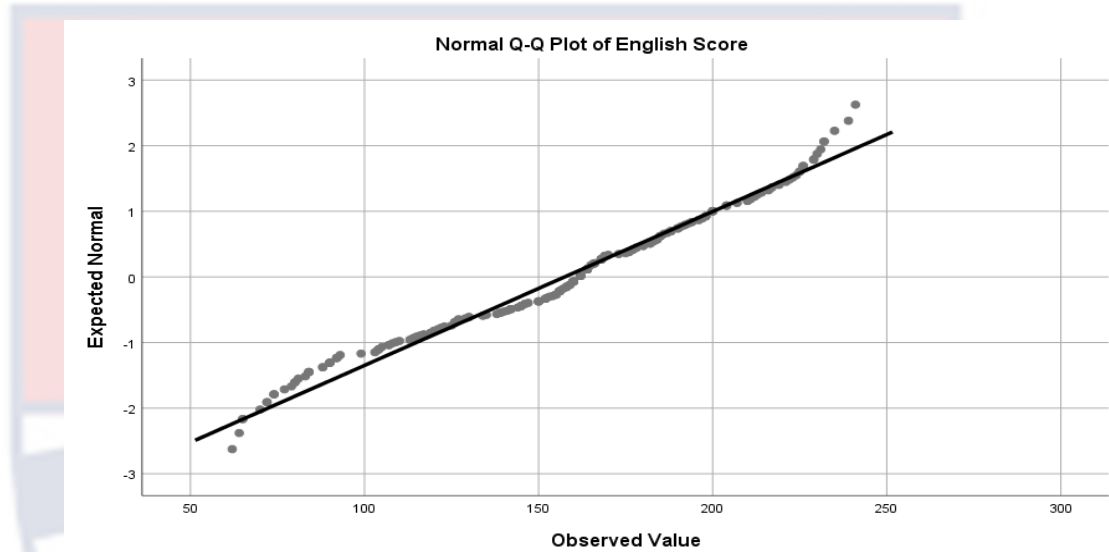


Figure 6: Normality and linearity tests are diagnostic tests (*Q-Q plot*)

Source: Field Survey (2021)

A linear standard probability plot shows normality and linearity, according to Pallant (2016). When expectations are met, a reliable result is produced, according to Pallant. Figure 6 shows a normality and linearity of the variables. The plot, which showed the normality and linearity of the data among the variables (impulsivity and performance in English language), showed the movement of variables along the diagonal line. The Pearson product-moment correlation coefficient data showed a negative (inverse) association between impulsivity and English language performance [$r(34) = -.130, p = .049$]. According to the findings, the higher the impulsivity behavior of the pupils, the lower the students' English performance.

Research Hypothesis Four

H₀₄: “There is no significant relationship between children’s impulsivity and their performance in Mathematics.

Several works in different contexts and geographical settings suggest that the impulsivity behaviour of pupils could determine or predict performance in Mathematics. This prompted the researcher to investigate whether there is a relationship between impulsivity in pupils and their mathematical ability in Ghana. The PPMCC was used to analyse the data obtained. In the analysis, correlation (r) was used to determine the degree and the direction of the relationship between the variables (impulsivity and performance in Mathematics). The correlation was tested at .05 level of confidence.

In performing the PPMCC analysis, homoscedasticity assumption was checked. Figure 7 presents the results of the normality assumption”.

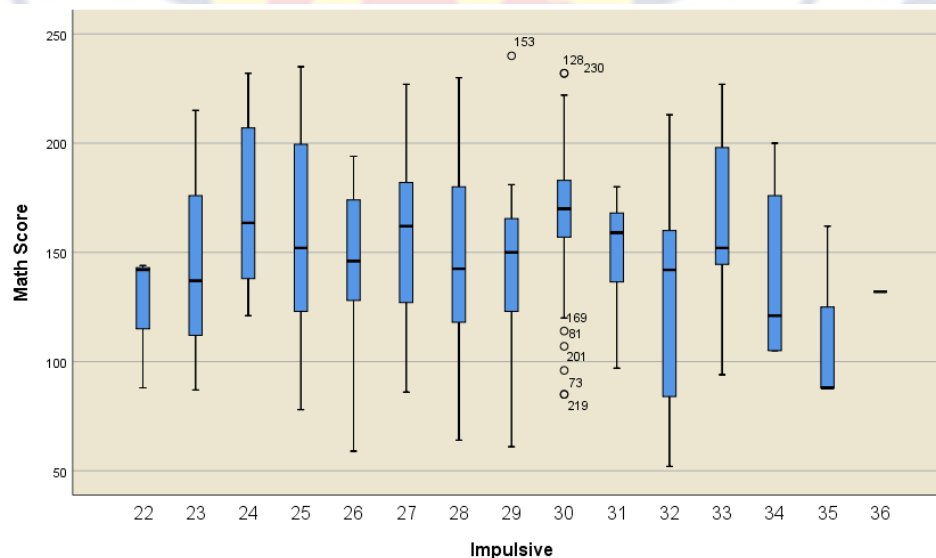


Figure 7: Homoscedasticity normality assumption for the variables

Source: Field Data, 2021

Figure 7 shows that most of the bars are divided equally which confirms that the data was almost assumed normal and as such PPMCC could be performed. The results of PPMCC showed an inverse negative relationship between impulsivity and pupils' performance in mathematics language [$r(34) = -.089, p = .176$]. The results suggest that the higher impulsivity behaviour of the pupils, the lower the performance of the pupils in mathematics.

Research Hypothesis Five

H₀₅: “There is no significant difference between impulsive and non-impulsive pupils concerning their academic performance.”

I looked for a substantial difference between impulsive and non-impulsive students' academic performance in order to produce further empirical proof. Independent sample t-test was judged acceptable for the analysis in order to accomplish this. Based on the presumption that the researcher wanted to determine whether there are statistically significant differences between the mean scores in the two independent groups (impulsive and non-impulsive students) with regard to their academic performance (dependent variable), this statistical tool was selected. As a consequence, the groups' combined scores (impulsive and non-impulsive students) were compared to the students' academic achievement. To validate the data assumption, Levene's test for homogeneity of variances was first performed. Table 9 displayed this result.”

Table 9: Homogeneity of Variances Test Results (HVT)

Levene Statistic	df	Cal. t-value	Sig. value	Remarks
.062	200	-.379	.804*	Equal Variances Assumed

Source: Field Data (2021) *Significant difference exists at $p \leq .05$, $n=202$, $CI=95\%$

Table 9 shows that Levene's test results are not significant [$t(200) = .379$, $p = .84$], implying that the variances are believed to be equal. Because the variances are believed to be equal (homogeneous), the homogeneity of variances test is not violated. This allowed for reporting the independent samples t-test results in Table 10.

Table 10: Results of Independent t-test Comparing Impulsive and Non-Impulsive Pupils concerning their Academic Performance

Variable	Group	N	Mean (M)	Std. dev. (SD)	T	p-value
Academic performance	Impulsive	34	103.44	43.139		
	Non-Impulsive	168	153.35	40.255	-.379	.001*

*Significant, $p < 0.05$

Degree of freedom (df) = 200

The results in Table 10 indicate that the mean scores of the independent groups (impulsive and non-impulsive) in terms of academic achievement were descriptively different. It was clear from the descriptive results that students who exhibited impulsivity scored low ($M = 103.44$, $SD = 43.139$) than those with no impulsivity ($M = 135.35$, $SD = 40.255$). Consequently, the independent samples t-test results showed that the mean scores were statistically significant [$t(200) = -$

.379, $p = .001$, $n=202$]. The results infer that the academic performance of the pupils is relatively dependent on the impulsivity behaviour of the pupils. Based on the result, the hypothesis stated: “There is no significant difference between impulsive and non-impulsive pupils concerning their academic performance” was rejected, and therefore, the alternate hypothesis was upheld.

Discussion of Results

This section of the study placed the analysed results under empirical context. The discussion of the study combines several related studies that share similar or the same objectives. Most of these studies employed similar methodological approaches but varied sample sizes and designs. The analysed results are discussed under the formulated objectives of the study. The discussions were under some tenants that served as the map to the study. These included the prevalence of impulsivity among primary school children; how pupils’ impulsivity levels relate to their parents’ educational background; the impact of impulsivity on pupils’ academic performance; and how gender differs in the performance of pupils for impulsivity.

Prevalence of Impulsivity among Primary School Children

The study's goal was to find out how common impulsivity is among basic school pupils. The study's findings revealed that approximately 17% of the participants were impulsive, as shown in Table 3. This suggests that the basic school pupils who contributed to this research were prone to impulsivity. This discovery is in line with what has been discovered in other studies. For example, Chamorro et al. (2012) discovered that impulsivity was 17% among the 34,653

people they studied in the United States of America in their study "Impulsivity in the general population." According to the findings of a separate study aimed at determining the prevalence of hyperactivity, impulsivity, and inattention in the Canadian population of 2-11-year-old children, between 5% and 17% of 2-11-year-old children engage in impulsive behaviour (Romano, Baillargeon, & Tremblay, 2002). Most school-aged youngsters struggle with impulsivity, according to multiple research. ADHD is a chronic illness with deficiencies in several areas of functioning, according to studies by (Daly et al., 2007; Forzano et al., 2021; Ramya, Goutham, & Lakshmi, 2017).

In addition, impulsivity is prevalent among primary school students (Evans et al., 2007). These scholars' assumptions and current findings suggest that impulsivity is very common among primary school children. Anxiety, depression, giftedness, learning disability, bipolar disorder, behaviour, and opposition defiant disorder could all be confused with the disorder if it is not adequately assessed. ADHD is characterized by significant attention, motor activity, and impulsivity problems that happen more frequently than expected (Evans et al., 2007). According to the US Department of Education (2006), the fundamental symptoms of inattention, impulsivity, and hyperactivity lead to immature behaviour with social consequences, among other things. Students with ADHD face various issues, including difficulties in sexual relationships, driving offences, and substance usage (Chamorro et al., 2012; Huizink, Van Lier, & Crijnen, 2009). According to Loe and Feldman (2007), most kids in their classrooms demonstrate impulsive behaviour. They (Loe & Feldman) went on to say that the initial symptoms of hyperactivity,

distractibility, impulsivity, and hostility tend to fade over time, while newer research suggests that the effects of ADHD can be felt well into adulthood (Chamorro et al., 2012).

Junod et al. (2006) believe that impulsivity significantly impacts primary school students' close classroom activities. According to Junod et al. (2006), most children with this ability are easily distracted, and their excessive motor activity leads to a learner who has trouble interacting with peers, owing to their high levels of verbal and physical aggression (DuPaul & White, 2006).

In addition, it indicates that rejection is not the main issue in peer connections among students with ADHD. Their peer problems stem from both negative behaviour outbursts and social skills deficiencies. According to Junod et al. (2006), ADHD learners' academic achievement is hampered due to frustration and other negative emotions, and their relationships within the school environment are harmed. Thus, for learners with ADHD, the interaction of inattention, peer conflict, and learning difficulties, among other things, compromises learning.

Pupils' levels of impulsivity and their parents' educational background

One of the core mandates of the study was to explore how pupils' levels of impulsivity relate to their parents' educational backgrounds. To achieve this, students' impulsivity scores under review were coded into three categories, namely low (for scores 120 – 136), medium (for scores 137 – 144), and high (for grades 145+). The study results suggest that no significant association existed between parents' educational background and pupils' levels of impulsivity in the Ghanaian context. Thus, there is no relation between the parents' educational backgrounds

and the levels of impulsivity of the pupils. In other words, pupils' level of impulsivity is not determined by the background of their parents.

The quest for researchers to establish how pupils' impulsivity levels relate to parents' educational background has been widely explored, and varied results have been found depending on the geographical context. For example, Japar (2017) found contrary results though they employed a similar approach as the current study. Their study investigated the effects of parents' education and personality aspects on a child's disruptive behaviour. The correlational design was approached quantitatively. The independent variables were parents' education and personality, while the dependent variable was disruptive behaviour. The findings revealed that the parents' education and personality influence child disruptive behaviour

Another related study that shares similar findings with the current study is Assari et al. (2018). Simple linear regression analysis was used on the data in that study, and the results showed that higher household income and maternal education at birth were linked to decreased youth impulsivity at the age of 15, regardless of race, gender, or family structure. There was a significant interaction between race and household income at birth on future juvenile impulsivity, indicating that Whites were more protected than Blacks. Even though evidence in the literature suggests that pupils' impulsivity levels relate to their parents' educational background, findings from the current study (with Ghana as geographical context) do not support such claims.

Again, the study has brought to the fore that parents' educational background does not necessarily determine the pupils' levels of impulsivity. This

means that parents' educational backgrounds do not influence or affect the pupil's impulsivity. Children's personalities and behaviours are shaped by their parents' actions, personalities, and upbringing. That is to say, parents serve as models for their children's personalities and behaviours, particularly throughout their early stages of development, which is consistent with Bandura's modelling theory (Bandura, 1978). It is reasonable therefore to surmise that the parents' educational background somehow determines the child's impulsivity since impulsivity (as a multidimensional concept) has been defined as an "inability to wait, a tendency to act without forethought, insensitivity to consequences, and an inability to inhibit inappropriate behaviours" (Reynolds, Ortengren, Richards, & De Wit, 2006, p. 306). However, this research results show that parents' educational background consisting of no education, primary, JHS, SHS, MSLC, and tertiary, does not correlate with child's impulsivity in the Cape Coast Metropolis of Ghana. Most of these impulsive behaviours could be attributed to other unforeseen and confounding factors which need to be explored.

Impact of impulsivity on pupils' academic performance

The results from the current study indicated that the academic performance of pupils is highly affected by the impulsivity they display in the classroom. These findings support several empirical evidence in the literature that could be inferred that impulsivity could determine children's academic performance at all levels. To discuss empirical evidence, I fall on several related works. For example, similar work was found in Malaysia. Specifically, (Alavi et al., 2019) examined the relationships among attention, impulse control, gender, and academic achievement.

They found similar results that suggest that pupils' academic performance is vastly affected by their classroom impulsivity.

Alavi et al. (2019) utilized a similar methodological strategy in their study, in which they used a purposive sample method to pick 270 school children in Malaysia.. Their study revealed that attention and impulse control were important indicators of academic achievement. Grades also judged an academic success of the children. Merrell et al. (2017) explored the link between a continuum of inattention, hyperactivity, and impulsivity at the age of five and academic attainment at eleven, correlating with another similar conclusion. Quantitative data was collected from 46,369 children from 1,812 elementary schools in their study, which followed a similar methodological approach. The researchers used the Performance Improvement Plan (PIPS) on-entry baseline evaluation to measure children's early reading and mathematics. The intensity of inattentive behaviour at age 5 and achievement at age 11 was a significant negative direct association. While hyperactivity was not linked to achievement, impulsivity was.

I refer to Babaeian and Jamshidzadeh's (2015) study conducted in a different environment to broaden the discussion. Their research looked at the link between students' impulsivity, timidity, and academic success. They used a descriptive survey approach and recruited 100 elementary school students from Aseman Abad in Iran for their study. Students' grades were employed to measure achievement (Babaeian and Jamshidzadeh's, 2015). This is analogous to my present research, in which I used exam scores to assess students' academic progress. The findings revealed that impulsiveness and timidity in students have a substantial

favourable link with academic achievement. Clearly, impulsivity has been shown to influence students' academic performance in most research, and the current study's findings support this assertion.

In essence, the findings of all of these corroborating studies conclude that the prevalence of impulsivity among primary school children has a significant impact on or influence a wide range of classroom activities. This, in turn, may impact kids' academic achievement, either directly or indirectly. In plain terms, the current study explored the relationship between impulsivity and academic performance, concluding that impulsivity affects students' academic performance.

Gender and Impulsivity

According to my study, impulsive male students exhibit academic success on par with impulsive female students. Consequently, among the primary school students who took part in the research, there was no association between impulsivity and gender. My study found that despite gender differences in attention and impulse control, these qualities had minimal impact on academic success. Boys and girls use attention and impulse control in similar ways, which suggests that when engaged in learning and academic achievement, boys may exert deliberate control over their typically higher levels of inattention and impulsivity. This may explain why there is no gender effect in academic pursuits.

An earlier study's findings in this region were conflicting. According to other studies, there are no differences between the sexes in attention (Chan, 2001), impulse control (Hague, Kellett, & Sheeran, 2016), academic achievement (Goni, Wali, Ali, & Bularafa, 2015), and both (Impulse control and academic

achievement) (Hague, Kellett, & Sheeran, 2016). Hague, Kellett, and Sheeran (2016); VanSchyndel, Eisenberg, Valiente, and Spinrad (2017). While we focused on kids who were developing normally, studies of kids with attention and impulse control issues may have shown that boys suffered more in academic settings from considerable inattention and impulsive control.

This study adds to our understanding of how attention, impulse control, gender, and academic success are related among primary school pupils. According to the results of the present research, parents and instructors may need to manage boys and girls differently in order to assist males with their effortful control over fundamentally lower levels of attention and impulse control. These results also suggest that children with extremely high levels of impulsivity and inattention (e.g., children with ADHD) should be treated differently from children who are typically developing (and possibly boys in particular), as it is more challenging for them to exert effort control over these tendencies on their own. My research employed an overall score or grade to evaluate academic success to avoid the risk of underrepresenting it when measures are restricted to certain areas.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Overview

The study's most relevant findings are discussed in this final chapter, and some conclusions and recommendations about the prevalence of impulsivity among primary school students and its impact on their academic performance.

Summary

The study's main goal was to determine how often primary school students in Cape Coast Metropolis engage in impulsivity and how this behaviour impacts their academic performance. The inquiry was guided by four hypotheses and three research questions. The researchers used a descriptive survey approach and a quantitative method. The study's accessible population consisted of basic four students from five public schools in Cape Coast Metropolis who had just been accepted to primary five. The five schools used for the research were chosen via a purposive selection technique. In the research, which included 202 pupils, 34 were impulsive whereas 168 were not.

“This study employed three standardised research instruments to get its data. Parents may utilise a variety of instruments to evaluate their children's impulsivity (CIFP), including the Vanderbilt Assessment Scale, the National Initiative for Children's Healthcare Quality (NICHQ), and the Checklist for Impulsiveness for Parents. Inferential statistics (Pearson correlation, Chi-square test of association, independent samples t-test, and regression) and descriptive statistics (frequency and percentages, means and standard deviation, and regression) were used to analyse the collected data”.

Key Findings

The significant findings that contribute to current knowledge and the new knowledge created by the study are highlighted in this section.

1. One significant finding from the study was that impulsivity was common among the primary school pupils who participated in the study.
2. It was revealed that no significant association existed between parents' educational background and pupils' levels of impulsivity. In other words, parents' educational background does not necessarily determine the pupils' levels of impulsivity.
3. Another significant finding from the study was that about 90% of the variation in pupils' academic performance could not be explained by impulsivity. There might be other factors accounting for pupils' low performance with impulsivity, and these factors need to be explored.

4. It was found that gender did not differ in the performance of pupils with impulsivity. No significant difference existed between male and female impulsive pupils regarding their academic performance.
5. There was no significant difference between males and girls in their proclivity to be impulsive. It was clear that the proportion of impulsive male students did not differ considerably from that of impulsive female students. Thus, among the primary school children who took part in the study, there was no link between impulsivity and gender.
6. There was a significant relationship between pupils' impulsivity and English language performance. The results indicated that the higher impulsivity behaviour of the pupils, the lower their performance in English.
7. Similarly, there was a significant relationship between the pupil's impulsivity and their performance in Mathematics. The results suggested that the higher impulsivity behaviour of the pupils, the lower their performance in Mathematics.
8. Finally, a significant difference was established between impulsive and non-impulsive pupils concerning their academic performance. Non-impulsive pupils performed better than pupils with impulsivity.

Conclusions

The study's findings led to various conclusions about primary school children's impulsivity and its impact on academic achievement. According to the findings, some primary school students in Cape Coast Metropolis exhibit impulsivity in various ways that their teachers may be unaware of. Students'

impulsive behaviour is likely to influence their academic achievement negatively. Recognizing that there are individual differences among students with impulsivity and thus identifying the problem means the required mediation can be supplied on time is always beneficial for teachers who have an adequate understanding of their pupils' impulsivity.

Findings from the study also provide insight about gender differences in impulsivity among primary school pupils who participated in the study. The study has brought to the fore that gender may not be a significant moderating factor in the assessment of impulsivity among primary school children. Therefore, there is the need to focus on the identification and provision of support for pupils with impulsivity irrespective of their gender, especially when we want to help them achieve their educational potentials in life.

Recommendations

From the findings of this study, the following recommendations are offered:

1. It is recommended that the Ministry of Education, Ghana Education Service, and other education stakeholders should organise seminars and workshops to orient and train school psychologists, counsellors, and classroom teachers to focus on the identification and provision of support for pupils with impulsivity irrespective of their gender.
2. Behaviours of inattention/impulsivity present a risk for the academic competence of primary schools children. It is recommended that primary school teachers adopt instructional strategies that seek to provide a timely

and necessary mediation to improve the academic performance of impulsive children.

3. “Professional learning programmes should be implemented by school authorities on a regular basis to support teachers in deepening pedagogical content knowledge to make learning for their impulsive pupils more interesting and relevant.
4. Parents and teachers must manage impulsive and non-impulsive pupils differently. Findings from the study further suggest that parents and teachers must manage children with very high levels of inattention and impulsivity (e.g., children with ADHD) differently than typically developing children in one group, because impulsive children have more difficulty with their own efforts to exercise effortful control over performance”.

Suggestions for Further Research

Because it primarily looked at elementary schools in the Cape Coast metropolitan, the current study has limitations. To make the study more representative and the conclusions more generalizable, it should be replicated in similar population groupings over more significant geographic areas.

Many variables could influence academic performance; however, this study concentrated on only impulsivity behaviour, which explained a little over 10% variation of pupil’s academic performance. Therefore, further studies could consider other variables and conditions such as autism, motivation, social

environment, self-esteem, academic environment, etc., as possible predictors of pupils' academic performance.

Because the study relied solely on questionnaires to obtain data, future studies could integrate observation and interviews to provide more experimental, raw, and realistic evidence. Furthermore, this research has paved the way for more research into impulsive difficulties, particularly as it relates to gender disparities.



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APPENDICES

APPENDIX A

Teacher Informant for the NICHQ-Vanderbilt Assessment Scale

The questions on this survey cover a wide range of child behaviours. Please complete it entirely and truthfully, as the data you offer aids the investigator in supporting the child in attaining and developing to his or her maximum potential.

SECTION A

Fill in the blanks with the required information.

Name of the teacher:

Gender of the teacher:

Gender of the child:

Name of the child.....

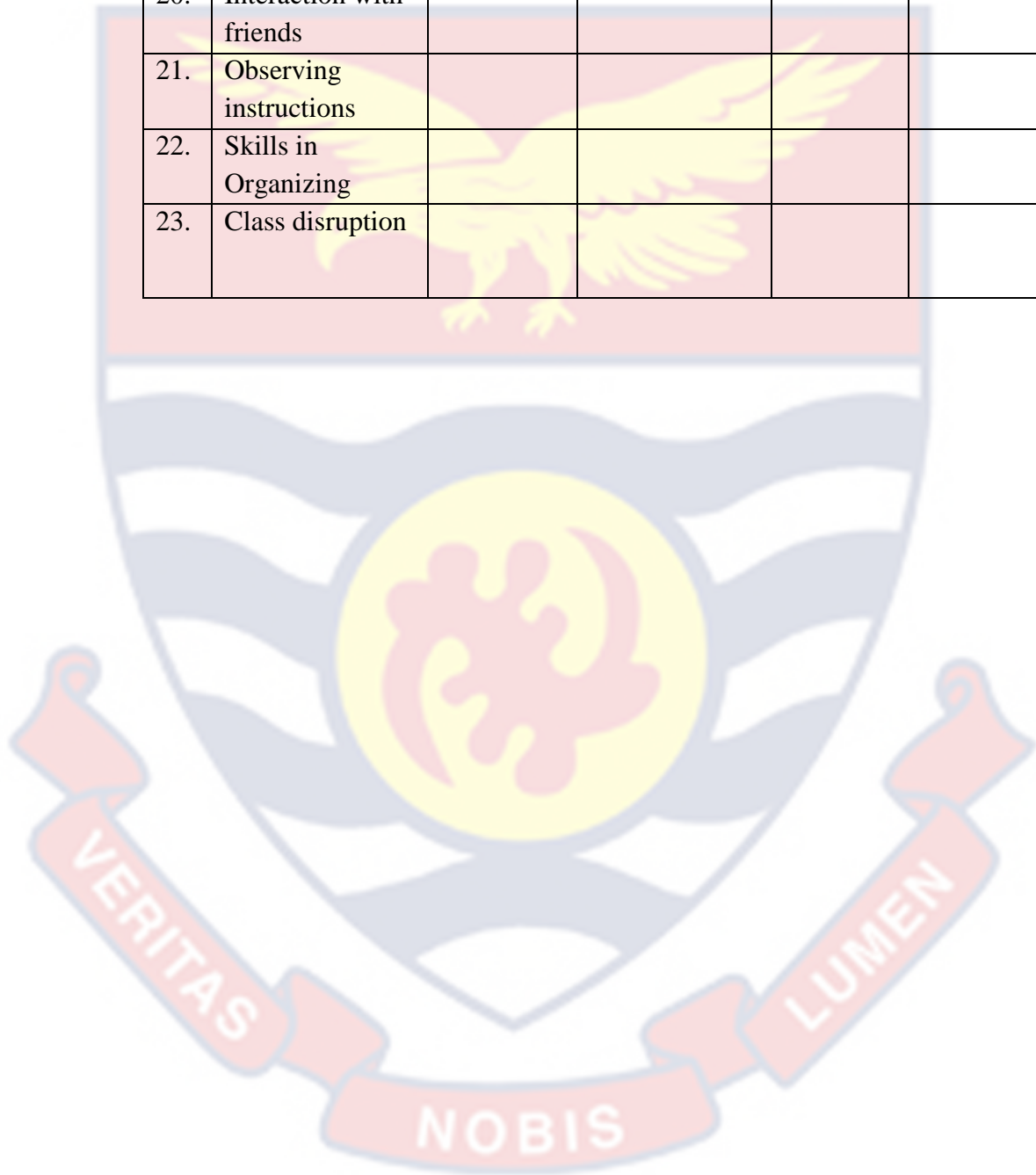
SECTION B

In the columns supplied to the children, select the best option.

s/n	Symptoms	Never	Occasionally	Often	Very Often
1.	Failure to do schoolwork due to failure to follow directions.				
2.	Has difficulties putting tasks and activities in order.				
3.	Misplace stuff such as school supplies.				
4.	Is prone to forgetting things regularly.				
5.	Talks too much.				

6.	Gets annoyed very much.				
7.	Answers questions without waiting for them to be finished.				
8.	Is liking to fight				
9.	Constantly calls out incorrect replies in class				
10	Angry and vengeful				
11	In class, he or she ignores details or makes minor mistakes.				
12	External stimuli often distract him.				
13	Speaks up in front of a class.				
14.	Tasks requiring persistent mental effort are avoided				
15.	Has a hard time waiting for his or her turn when it comes to activities				
	Performance on a task	Excellent	Above Average	Average	Somewhat of a problem
16.	Understanding reading				
17.	Mathematical skills				
18.	Expression in Writing				

	Behavioural Patterns in the Classroom	Excellent	Above Average	Average	Somewhat of a problem
19.	Homework				
20.	Interaction with friends				
21.	Observing instructions				
22.	Skills in Organizing				
23.	Class disruption				



APPENDIX B

Parents' Checklist for Impulsiveness (CIFP)

This questionnaire can help you learn more about your child. Please fill it out completely and truthfully, as the information you offer will assist the researcher in assisting your child in achieving and developing optimally.

SECTION A

Fill in the blanks with the required information.

Name of the parent:

Gender of the Parent:

Parent's Age:

Parent's Education:

Name of the child:

Child's Gender:

Child's Age:

SECTION B

In the columns presented to the child, please check the best option.

s/n	Symptoms	Never	Sometimes	Often	Very Often
1.	Makes casual blunders in activities or fails to pay great attention to details.				
2.	Has trouble maintaining focus on activities				
3.	He appears not to pay attention when spoken to				
4.	Does not complete homework and does not follow instructions.				

5.	Keeps track of tasks and activities but finds it difficult to do so				
6.	Tasks that require sustained mental effort are avoided, hated, or avoided altogether.				
7.	Prone to misplacing things (e.g., Toys, pencils).				
8.	often distract outside stimuli				
9.	Is prone to forgetting things regularly				
10.	It is impossible to complete a task by sitting in one spot.				
11.	Cannot play silently				
12.	Gives answers to questions before they are asked				
13.	Has problems with waiting to act				
14.	Disturbs on others' conversations				
15.	Talks always.				
16.	Love to fight				
17.	Erupts in rage at the slightest provocation				
18.	Prone to anger				
19.	Careless to take care of his things				
20.	Always denied by his peers during play				

APPENDIX C

Children's Questionnaire on Impulsive Behaviour (IRQFC)

This survey is designed to learn more about you. Please fill it out completely and truthfully since the information you offer will aid the researcher in assisting you in achieving and developing your full potential.

Name:

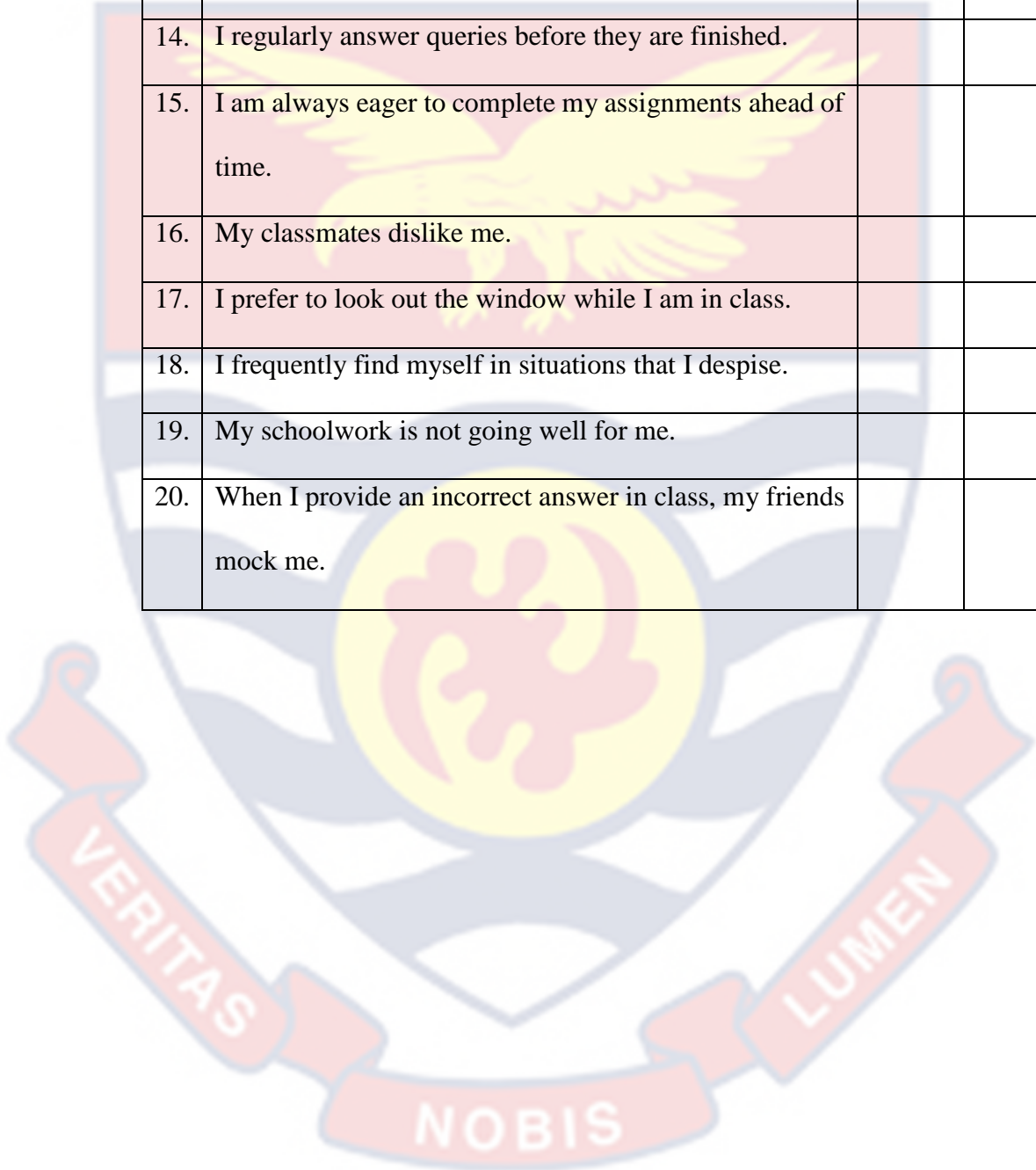
Age:

Gender Male () Female ()

Fill in the blanks with 'yes' or 'no' depending on your answer.

s/n	Symptoms	Yes	No
1.	When I am in class, I like to peek out the window.		
2.	When the teacher is teaching, I roam around the classroom.		
3.	I cannot play quietly by myself.		
4.	I enjoy conversing.		
5.	In class, I am prone to making blunders.		
6.	After I have insulted one of my pals, I typically feel unhappy.		
7.	It is difficult for me to wait my turn during a game.		
8.	My school supplies are frequently misplaced.		
9.	I dislike classwork because it takes time		
10.	When my pals are talking, I frequently interrupt them.		
11.	My pals can quickly irritate me.		

12.	My goods (such as my school bag) are frequently ruined, and I disagree with people.		
13.	I adore climbing (like chairs).		
14.	I regularly answer queries before they are finished.		
15.	I am always eager to complete my assignments ahead of time.		
16.	My classmates dislike me.		
17.	I prefer to look out the window while I am in class.		
18.	I frequently find myself in situations that I despise.		
19.	My schoolwork is not going well for me.		
20.	When I provide an incorrect answer in class, my friends mock me.		



APPENDIX D

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
FACULTY OF EDUCATIONAL FOUNDATIONS
DEPARTMENT OF EDUCATION AND PSYCHOLOGY

Telephone: 0332091697
Email: dep@ucc.edu.gh



UNIVERSITY POST OFFICE
CAPE COAST, GHANA

Our Ref:

5th July, 2021

Your Ref:

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

THESIS WORK
LETTER OF INTRODUCTION
MS. KEREN AFRIYIE ANTWI

We introduce to you Ms. Antwi, a student from the Department of Education and Psychology, University of Cape Coast. She is pursuing Master of Philosophy degree in Educational Psychology and she is currently at the thesis stage.

Ms. Antwi is researching on the topic: "PREVALENCE OF IMPULSIVITY ON PRIMARY SCHOOL CHILDREN AND ITS IMPACT ON ACADEMIC PERFORMANCE IN THE CAPE COAST METROPOLIS."

She has opted to gather data at your institution/establishment for her thesis work. We would be most grateful if you could provide her the opportunity and assistance for the study.

Any information provided would be treated strictly as confidential. We sincerely appreciate your co-operation and assistance in this direction.

Thank you.

Yours faithfully,

A handwritten signature in blue ink, appearing to read 'Ama A. Ocran'.

Ama A. Ocran (Ms.)

Principal Administrative Assistant

For: HEAD

APPENDIX E

Letter of Introduction – Ghana Education Office

GHANA EDUCATION SERVICE

*In case of reply, the
number and date of this
Letter should be quoted*



METROPOLITAN EDUCATION OFFICE
P. O. BOX 164
CAPE COAST

REPUBLIC OF GHANA

Tel. 024 476 9302 / 0244 97 8080
Email: capecoastmetropolitan@ges.gov.gh
My Ref. No GESMD/EP/VOL.5/107

28th July 2021

DISTRIBUTION

THE HEADS OF SCHOOLS CONCERNED

RE: INTRODUCTORY LETTER

This is to inform you that, Management of the Cape Coast Metropolitan Education Directorate has granted permission to Ms. KEREN AFRIYIE ANTWI, an M.Phil. student at the Department of Education and Psychology, University of Cape Coast to collect data on the topic “PREVALENCE OF IMPULSIVITY ON PRIMARY SCHOOL CHILDREN AND ITS IMPACT ON ACADEMIC PERFORMANCE IN THE CAPE COAST METROPOLIS.”

By a copy of this letter, headteachers concerned, are to within the approved confines of operations under the service, grant her the courtesies and assistance she may require in collecting the related data.

However, her presence and activity in schools should not unduly interfere with the school's academic work.

It is strongly advised that all COVID-19 protocols are strictly observed.

Thank you.

A handwritten signature in blue ink, appearing to read 'Dorcas Brenda Asare'.

DORCAS BRENDA ASARE (MS.)
METRO DIRECTOR OF EDUCATION
CAPE COAST