MAKERERE UNIVERSITY

INFLUENCE OF PERCEIVED PARENT INVOLVEMENT ON GIRLS' ATTITUDES TOWARDS CHEMISTRY LEARNING AT O' LEVEL IN SELECTED 'USE' SCHOOLS IN KAMPALA CITY

BY

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DECLARATION

I, **WATAKA JACQUELINE**, declare that this Dissertation titled Influence of perceived Parent Involvement on Girls' Attitudes towards Chemistry Learning at O'Level in Selected USE Schools in Kampala city. is my original work; and to the best of my knowledge, it has never been presented for a degree or any other award in any other University.

Signature .....

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Date 22/12/2025

APPROVAL

This dissertation, titled: "Influence of perceived Parent Involvement on Girls' Attitudes towards Chemistry Learning at O'Level in Selected USE Schools in Kampala city", has been under our supervision and is submitted with our approval as supervisors.

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DEDICATION

This work is dedicated to All My Family Members and course mates who gave me all the support and encouragement throughout the process of developing this dissertation.

ACRONYMS

USE	-	Universal Secondary Education.
'O' Level	-	Ordinary Level
KHS	-	Kampala High School
VVSSS.	-	Valley View Senior Secondary School
LSSS	-	Luzira Senior Secondary School
NMHS	-	Nateete Muslim High School
KSSS	-	Kansanga Seed Secondary School
UNEB	-	Uganda National Examination Board.
KCCA	-	Kampala Capital City Authority
MSS	-	Mengo Senior School
UNESCO	-	United Nations Educational, Scientific and Cultural Organization
DSTVE	-	Department of Science, Technology and Vocational Education.
NCES	-	National Center for Education Statistics.
RCHE	-	Ryakasinga Centre for Higher Education
PTAs	-	Parent Teacher Associations
STEM	-	Science, Technology, Engineering and Mathematics
SAQ	-	Self-Administered Questionnaire
FGDG	-	Focus Group Discussion Guide
SPSS	-	Statistical Package for Social Scientists
FGD	-	Focus Group Discussion
r_s	-	Pearson Correlation Coefficient.
IBL	-	Inquiry -Based Learning.
ICT	-	Information and Communication Technology

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ABSTRACT

This study determined the influence of perceived parent involvement on girls' attitudes towards chemistry at O' level in selected 'USE' Schools in Kampala City. The study was guided by Epstein's theory of Parent Involvement and considered three key dimensions of the theory that were important in the study which included; career guidance, provision of scholastic materials, and monitoring of students' learning that were believed influence girls' attitudes towards chemistry learning. The study was guided by three objectives that is to; 1. find out the influence of perceived parent involvement through career guidance on girls' attitudes towards Chemistry learning, 2. determine the influence of perceived parent involvement through provision of scholastic materials on girls' attitude towards chemistry learning and lastly 3. find the influence of perceived parent involvement through monitoring of students learning on girls' attitudes towards chemistry learning. A descriptive cross-sectional survey design was adopted for this study. The study employed a quantitative approach. Data was collected using a self-administered questionnaire from a total of 500 girls in five different 'USE' schools across Kampala. The questionnaire assessed the girls' attitudes towards chemistry and their perceived parental involvement in various aspects of their academic lives. The data was analyzed using descriptive statistics and Pearson Correlation. The findings revealed that parent involvement through career guidance was statistically significant in influencing girls' attitudes towards chemistry with p. value of $0.008<0.05$ and $r = 0.378$. It was further found that parent involvement through provision of scholastic materials was statistically significant in influencing girls' attitude towards chemistry with a p. value of $0.000<0.05$ and $r = 0.873$. There was also a significant relationship between parent involvement through monitoring of girls learning and girl's attitudes towards chemistry learning with a p. value of $0.001<0.05$ and $r = 0.663$. The study concluded that active parent involvement is crucial for improving girls' attitudes towards chemistry, ultimately contributing to their academic success. It is recommended that schools should develop programs to educate parents about their role in promoting positive attitudes towards science, emphasize the importance of open communication about career options, and ensure provision of necessary scholastic materials.

Chapter One

Introduction

1.1. Overview

This Chapter presents the background to the study, statement of the problem, the purpose of study, objectives, hypotheses, scope, the conceptual framework and the significance of the study; 'Influence of perceived Parent Involvement on girls' attitudes towards Chemistry Learning at Level in Selected 'USE' Schools in Kampala City.

1.2 Background to the study

1.2.1 Historical perspective

Girls in many countries continue to have a negative attitude towards chemistry, this has led them to perform poorly compared to their male counterparts for instance, in China attitudes of girls towards chemistry were found to be unfavourable especially regarding chemistry self-concept, persistence in chemistry, sense of belonging in chemistry, and perception of linguistic abilities in chemistry compared to their male counterparts (Rüschenpöhler et al, 2025). On the contrary, a study by Yusa & Ikhsan, (2021) found that girls had a positive attitude towards chemistry surpassing the boys in 10th grade. In Ekiti State Nigeria they found that there was a significant relationship between students' positive attitude to chemistry and their academic achievement. It was further found that girls had lower chemistry academic achievement which was attributed to their negative attitude towards learning chemistry, for instance they were less inclined to participate in answering questions during chemistry lessons (Amoke, 2019).

In a study carried out in Kenya it was found that girls had a very negative attitude towards chemistry compared to the boys, for instance only 15.5% of girls were sure of themselves when doing chemistry compared to 77.1% of boys (Jelimo, 2019). Also, in Rwanda, it was found that although both boys and girls had a positive belief in beneficial aspects of chemistry, but still girls showed less interest in chemistry (Evangeline et al, 2021).

Studies elsewhere in the world have also examined the effects of parental involvement on students' attitudes toward science subjects. A study explored how parents' beliefs and behaviors impact their children's motivation in 9th-grade science classes. Using the NCES High School Longitudinal Survey, they found that parental education, beliefs, and involvement in science-related activities were weak but significant predictors of students' academic motivation in science (Lundon & Amanda , 2024). Similarly, a study by Oluwatelure & Olurunegbe (2015) investigated the relationship between parental involvement and students' attitudes toward Biology and Chemistry. Their findings indicated that home influence significantly impacts school learning, suggesting that enhancing home support can improve student performance in science subjects. A study in Oman by Shebani et al, (2025) found a positive correlation between structured parental engagement and student academic achievement, motivation, and attitudes. Masa & Milla (2017) while looking at parental involvement as a factor of successful education found out that parental involvement goes beyond mere assistance with homework; it also includes academic socialization where parents communicate expectations, encourage students' aspirations, discuss learning strategies and support school management by participating in decision making at school among others.

Parental involvement, while culturally ingrained in many African societies as a communal responsibility, has faced modern challenges including economic pressures, urbanization, and sometimes a perceived disconnect between the school curriculum and local realities (Mugumya, 2022). The historical emphasis on parental involvement was often on ensuring access to education, but recent decades have seen a shift towards focusing on the quality of education and the factors that influence it, including the home environment. In order to improve girl's attitudes towards chemistry, Kaziro & Musiimenta (2024) proposed that professional teachers took over the role of teaching and parents involvement shifted to support. This support involved paying school fees,

provision of scholastic materials, supporting school management through planning, decision and participating in leadership, supporting a child's learning at home by checking the pupil's workbooks, helping pupils with homework, giving pupils encouragement, ensuring pupil attendance to school to avoid absenteeism, guidance and counselling and monitoring their child's learning. A Study conducted at Ryakasinga Centre for Higher Education (RCHE) investigated the relationship between parental involvement and academic performance in Sheema District and it examined the effects of parenting, home learning, and volunteerism. The findings revealed significant positive correlations between the variables. The study concluded that effective communication is crucial for student success and that a supportive learning environment enhances academic outcomes (Mugumya, 2022).

Another study evaluated parental influence on students' performance in the Ugandan Certificate of Education in public secondary schools (Mugomba, 2023). Using a cross-sectional survey with 357 participants, the study found that parental involvement significantly predicted academic improvement, contributing to a 50.2% positive change. Another study explored how parental participation affects academic achievement in Iganga and Mayuge districts (Mahuro, 2016). By analyzing data from 2,669 grade six students, it linked parental involvement to improved academic outcomes. The results indicated that increased parental participation through parenting and communication significantly raised students' numeracy scores by 6 and 15 percentage points, respectively.

Chemistry is a compulsory science subject at the ordinary level in Uganda, playing a vital role in preparing students for various career opportunities, including medicine, pharmacy, food science, and chemical engineering. Despite the potential for lucrative careers, many students are not interested in chemistry. Research indicates that low performance in chemistry is often linked to

negative attitudes toward the subject (Musengimana , Kampire, & Ntawiha, 2021). Girls in USE schools have continuously performed poorly in chemistry compared to their male counterparts and this is reflected in the Schools' 'Record of marks book. It is with this background that the researcher was prompted to carry out a study on the influence of perceived Parent involvement on girls' attitudes towards Chemistry at O'Level in selected USE Schools in Kampala City.

1.2.2 Theoretical Perspective

This study was based on Epstein's parental involvement theory (Epstein, 1995) which states that, children always learn and grow through three overlapping spheres of influence which include; the family, school and the community. Epstein outlined six various types of parental involvement which according to her assisted educators in developing the school, family, and community partnership programs and they are; learning at home, parenting, communicating, collaborating with the community, volunteering and decision making.

The theory provided a comprehensive and inclusive approach to parental involvement, encompassing six types of involvement that catered for diverse parental roles and responsibilities. Epstein's theory also emphasized the importance of academic socializations, which included parents discussing educational topics and encouraging academic pursuits at home. Implying that Parents engaging actively in conversations about chemistry, whether through discussing real-world applications or helping with homework, pushed for a positive attitude towards the subject (Hill & Tyson, 2017). Epstein's theory is relevant in this study as parents create supportive home environments for their children who are students, improve learning conditions at home, introduce parental education activities, and introduce family support programs, all of which lead to better school attendance, improved attitudes towards chemistry, and increased respect for parents. The researcher therefore believed that Epstein (1995) theory would guide the research on investigating the

influence of perceived parent involvement on girl's attitude towards chemistry Learning at O'Level in selected 'USE' Schools in Kampala City.

Epstein's parental involvement theory has been used in studies such as;

Parents' Perceptions on Parental Involvement in Their Children's Education in Giyani Municipality Rural-based Schools, Limpopo Province, South Africa (Nomazulu, Amohelang , Thulani , & Maphuthi , 2024) Parents' involvement and academic performance of universal primary education schools in Buhaguzi county, Hoima district (Bigirwa,2018), Parental Involvement in School: A Literature Review (Francesco et al,2011) among others.

1.2.3 Conceptual Perspective

The study consists of two main concepts: parental involvement and girls' attitudes towards chemistry. Oluwatelure & Oloruntegbe (2010), described Parent involvement as parents' consistency in seeing to it that their children improve in their academic performance. Additionally, Makewa & Role (2016) defined Parent involvement as the direct help given to the learner by parent for example helping the learner with homework and any other activities that show the learners developmental benefits. Bartolome et al. (2017) defined Parental involvement as a parent's participation in schooling of a child. According to Perriel (2015), parent involvement is the support given by parents toward their children's education and development from childhood to adulthood. In this particular study, parent involvement refers to the roles, responsibilities, and activities that parents play both at home and school, in helping girls to build a positive attitude towards chemistry as a subject at ordinary level.

(Al-Najdi , 2013) defined attitude towards chemistry is defined as interests or feelings towards studying chemistry. Yara (2009) defined attitude in science (chemistry) as a scientific approach assumed by an individual for solving problems, assessing ideas and making decisions. He added

that it is students' beliefs and attitudes that have the potential to either facilitate or inhibit learning. In this study, girls' attitude towards chemistry were the activities exhibited by the girls that showed that they either liked or did not like the chemistry subject. For example, a girl's putting up her hand in class during lessons to answer or ask a question, having good, chemistry test scores etc. were indicators of liking chemistry as a subject. Hence this girl has a positive attitude towards chemistry.

1.2.4 Contextual Perspective

This study was carried out in selected 'USE' schools in Kampala City. The USE program is a government policy that was introduced by the government of Uganda to provide fees free secondary education to eligible students (Kazuya & Chikako, 2018). Currently the program supports over 1826 schools nationally, with Kampala having 11 schools in the program ((MoES), 2022).USE schools are predominantly day schools and cater primarily to students from low-income and middle-income households, as the program's explicit goal is to improve equity in access to secondary education (Akoth & Omedo, 2025). A common characteristic observed in these settings is a potential limitation in active parental involvement. A 2019 study focusing on USE schools in the central region of Uganda found that a majority of parents (over 60% in the studied sample) did not regularly attend school meetings or consistently monitor their children's homework, often citing occupational demands and economic pressures as primary constraints (Kahunzire & Kiyingi, 2023).

The learning environment in USE schools is characterized by specific resource realities. The government provides capitation grants per student; however, Busingye & Najjuma (2021) asserts that many times these funds are often insufficient to cover all operational and Scholastic material

costs, potentially affecting the quality of practical subjects like chemistry. For instance, a report by the Ministry of Education and Sports (2024) noted that inadequate laboratory facilities and a shortage of science equipment remain a challenge in many secondary schools, which disproportionately affects hands-on learning.

National data consistently shows a performance gap in science subjects between genders. The 2021 Uganda Certificate of Education (UCE) examination results show that while overall performance in science was low, a higher proportion of male candidates passed chemistry at credit level (Grade 1-6) compared to female candidates (MoES, 2024). This disparity is supported by research attributing it to a combination of factors, including negative attitudes and lower self-efficacy among girls towards physical sciences, societal gender stereotypes, and a lack of supportive learning environments (Musiimenta et al., 2019, p. 35).

1.3 Statement of the problem

The government's efforts to promote the teaching and learning of science including chemistry at secondary school level is aimed at developing a positive attitude towards the science subjects among girls and boys. This ensures that learners are fully motivated, and engaged in science/ chemistry learning, which would increase their problem-solving skills, confidence consequently influencing better grades in chemistry. Despite all that has been done, there is a persistent and troubling trend of negative attitudes towards the subject among O'Level students in Uganda, particularly girls in urban settings like Kampala (Musengimana , Kampire, & Ntawiha, 2021). This negative attitude is problematic because it is strongly associated with lower academic achievement, reduced continuation to advanced science studies, and ultimately constrains the pipeline of female professionals in science-based careers (UNESCO, 2017). While interventions such as teacher training and provision of laboratory kits have been implemented nationally to

improve student attitudes (Ministry of Education and Sports, 2020), a key potential lever structured parent involvement remains under-researched and underutilized specifically in Universal Secondary Education. If this gap is not addressed, the persistent negative attitudes will likely continue to undermine girls' performance in Chemistry, perpetuate gender disparities in STEM at higher education levels, and limit Uganda's capacity to meet its scientific and technological human resource goals. Given these challenges and the critical importance of fostering a positive attitude toward chemistry among girls, this study aims to investigate the influence of perceived parent involvement on girls' attitudes toward chemistry at O' Level in selected 'USE' Schools in Kampala City.

1.4 Research Purpose

The study aimed at establishing the relationship between perceived parent involvement and girls' attitude towards Chemistry Learning at O' Level in 'USE' Schools in Kampala.

1.5 Specific Objectives

The study was carried out to;

(i) find out the influence of perceived parent involvement through career guidance and girls' attitudes towards Chemistry learning.

(ii) determine the influence of perceived parent involvement through provision of scholastic materials and girls' attitude towards Chemistry learning.

(iii) find out the influence of perceived parent involvement through monitoring of the girls learning and girls' attitude towards Chemistry learning.

1.6 Study Hypotheses

The study tested the following null hypotheses;

i) There was no statistically significant relationship between Parent involvement through career guidance and girls' attitude towards Chemistry at ordinary level in Universal Secondary Education Schools in Kampala.

ii) There was no statistically significant relationship between Parent involvement through provision of scholastic materials and girls' attitude towards Chemistry at ordinary level in Universal Secondary Education schools in Kampala.

iii) There was no statistically significant relationship between Parent involvement through monitoring girls' learning and girls' attitude towards chemistry at ordinary level in Universal Secondary Education schools in Kampala.

1.7 Scope

1.7.1 Geographical scope

The study was conducted in Kampala City in Uganda. Kampala city was selected because it has the highest concentration of 'USE' Schools on district basis with 11 universal secondary Education Schools (MoES, 2022). Five secondary schools were chosen to take part in the study using stratified random sampling where one school was selected from each of the five divisions in Kampala.

1.7.2 Content scope

The study examined the relationship between parent involvement and girls' attitude towards chemistry at Ordinary level in Universal Secondary Education Schools in Kampala. Parent involvement was the independent variable while girls' attitude towards chemistry the dependent variable.

1.8 Conceptual Framework

The conceptual framework in Figure 2.1 is a schemer or model that reflects the interrelationship between the two variables in the study.

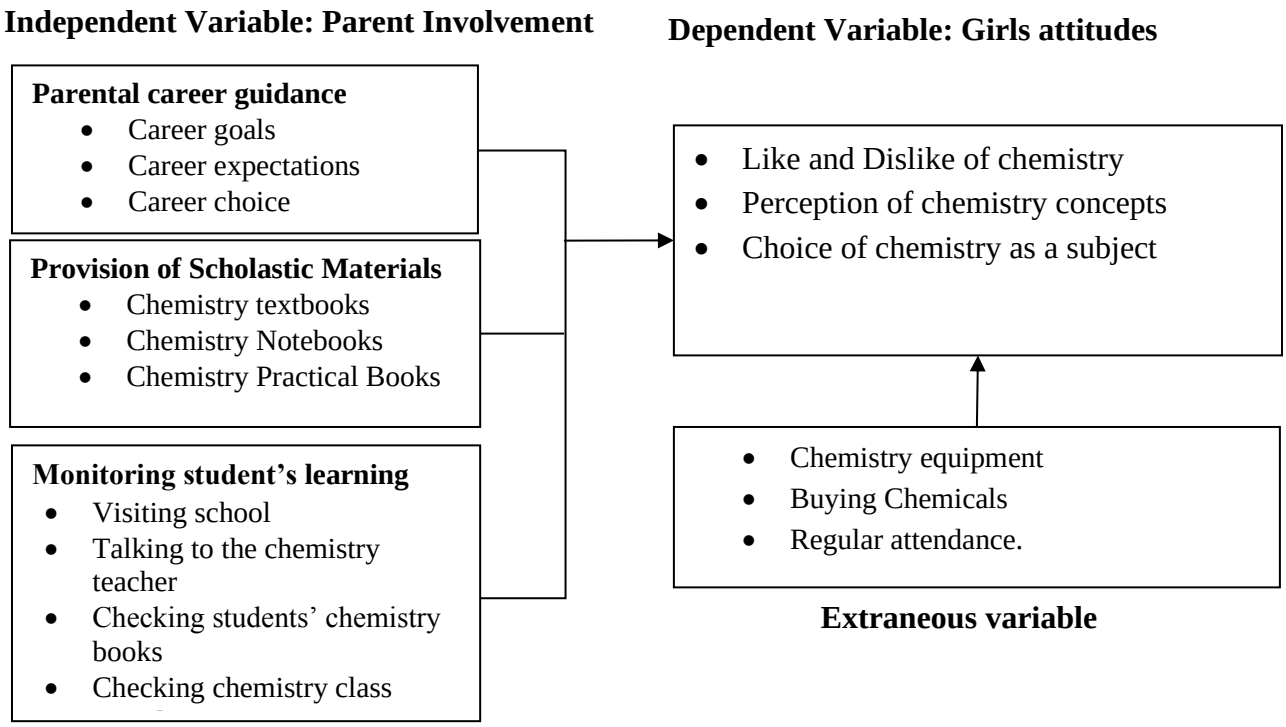

Figure 2.1: The relationship between parent involvement and girls' attitude towards chemistry at 'O' level. (*Adapted from Armstrong,2009)*

According to the model the independent variable (parent involvement) impacted on girls' attitude towards chemistry Learning (dependent variable). The figure also illustrates that when parents are involved in the girls 'learning through offering career guidance, provision of scholastic materials and monitoring learning, a positive attitude towards chemistry would be attained. The girls' positive attitude was measured by observing girls' participation in class activities, involvement in practical work, exam and test scores. The extraneous variables: school fees, availability of chemicals and equipment were controlled by selecting schools which were almost similar. The girls who participated in the study had paid school fees and had the same experiences with

chemicals and equipment meaning that they were experiencing similar conditions hence they should all have the same output.

1.9 Significance of the Study

The findings of this study will be beneficial to the following:

Decision makers, Policy makers and planners: The research findings may help these parties come up with appropriate policies of involving parents in the education of their children to improve their attitudes towards chemistry as a subject.

Institutions of Education: This study may be beneficial to education institutions in developing school activities that bring the school, the parents and community together seeking ways to improve on girls' attitude towards chemistry for example school visitation and speech days, School Science Exhibition days, Parents' Teachers' *Associations* (PTAs), and annual general meetings.

Parents: The study may benefit parents by understanding their roles. If parents become aware of how their involvement contributes towards girls' attitudes towards chemistry, they may get more actively involved in the education of their children

Future researchers: the study is expected to contribute to body of existing knowledge and literature on parent involvement in education and girls' attitude towards chemistry at ordinary level. More researchers undertaking studies in this field may be inspired by the findings and so this can act as a reference point to future research on parent involvement and girls' attitude towards chemistry at Ordinary Level.

1.10 Justification of the Study

There are many stakeholders in the implementation of USE. Each stakeholder has clearly defined roles and responsibilities (MOES, 2025). Parents have been identified as key stakeholders with many responsibilities towards the success of education and training. Similarly, many researchers have written widely about parents' involvement and its relation with students' attitudes and academic performance towards science and claim positive relation to exist (Oluwatelure & Oloruntegbe, 2015; Mugumya, 2022; Mugomba,2023).

Although they agree that parent involvement improves learning hence girls' attitudes, many parents with daughters in USE schools in Kampala are uncertain about their rightful contribution in facilitating the education of their children and how this influences their attitudes towards learning and unless it's clearly understood, the parents may continue being reluctant with their children's education. It is against this background that the researcher examined the relationship between parent involvement and girls' attitudes towards chemistry in selected USE schools in, Kampala District.

1.11 Operational Definitions of Terms

A parent in this study, meant, biological parents, relatives and guardians who stay with the girl(s) at home, where she(they) come from and return after school and carry the responsibility of supporting the girls' development, education and the general wellbeing.

O' Level (Ordinary Level) of Secondary school are the first four years of secondary school. After which a student attains a Uganda certificate of Education. The classes that make up 'O' Level are S1, S2, S3& S4.

Chapter Two

Literature Review

2.0 Introduction

This chapter presents the theoretical review and literature related to the three study objectives.

2.1 Theoretical Review

This study was guided by Epstein's Parental involvement theory that outlines the Six Types of Parental Involvement that clearly explain the link between perceived parent' involvement and girls' attitudes towards chemistry Learning (Epstein, 1995). This theory assists educators in developing school family and community partnership programs. There are various reasons for developing school, family, and community partnerships but the main reason suggested by Epstein for creating such partnerships is to help all youngsters succeed in school and later in life." Parent involvement comes out as an important variable that is positively associated with children's education. schools are increasingly realizing the importance of parent involvement and are encouraging families to become more involved. Epstein discusses how children learn and grow through three overlapping spheres of influence: family, school, and community. These three spheres must form partnerships to best meet the needs of the child. Epstein further defined six types of involvement based on the relationships between the family, school, and community and stressed the fact that all of these six types of involvement need to be included to have successful partnerships. The following are the six types of parental involvement outlined by Epstein; 1. Parenting (helping families with parenting skills and child upbringing), 2. Volunteering (creating ways that families can become involved in activities at school), 3. Communicating (developing effective home-school communication), 4. Decision-making (including families as decision-makers through school-sites councils, committees), 5. Learning at home (supporting learning activities in the home that reinforce school curricula) and 6. Collaborating with the community (matching community services with family needs and serving the community).

Educators, along with parents, are encouraged to select those practices likely to produce the types of outcomes that coincide most closely with their needs, goals, and capacities, Epstein (1995).In this study, four out of the six types of involvement were selected to determine the influence of perceived parent involvement on girls' attitude towards chemistry and these were parenting, communication, decision making and learning at home. The three study objectives that guided the study corresponded to the four types of Epstein's parental involvement that had been selected as shown below; Parents' career guidance corresponded to' communication' and 'decision making', Parents' provision of scholastic materials corresponded to 'parenting', and Parents monitoring of girls' learning corresponded to 'learning at home' and 'parenting'. The significance of Epstein's theory is seen in parents introducing, family support programs, supportive home environments educational activities for the girls, which leads to improved school attendance, respect for parents and understanding of the value of school. Epstein's theory informs parents of their responsibilities in assisting learners in gaining positive attitudes towards chemistry.

2.2 Review of Related Literature

In this section, review of literature related to the three study objectives is offered, that is, the relationship between parent involvement and girls' attitude towards chemistry through career guidance, provision of scholastic materials, and monitoring girls' learning is offered.

2.2.1 Parent involvement

Parent involvement in children's learning refers as all the activities done by the parents towards a student that affects their learning (Bigirwa, 2018). Other definitions for example Casey, (2022) were fixed towards activities related to schools while sociologists distinguished between activities done at home like assisting children with homework and activities done at school like communication with the school and participating in school-based activities."

Parent involvement may be different from one culture to another and each society may manifest a different form. In this study, parent involvement are the different ways a parent helps his or her daughter, both at school and at home to acquire a positive attitude towards chemistry learning. For example, offering career guidance when making career choices, career expectations and career goals, provision of scholastic materials; chemistry practical books, chemistry text books, laboratory coat and monitoring students learning by Visiting school, talking to the girls' chemistry teacher and checking the girls' chemistry books and class checking attendance.

There are other ways parents ensure that learners attain a positive attitude towards chemistry and better standards of education for example buying chemistry practical books and paying school fees on time. The most prominent teachers in the education field for ages and still the best teachers of our societies are parents (Bigirwa, 2018)The parenting style one uses, whether authoritarian or democratic as long as one provides a conducive family environment results into stable, mature, developed children who can easily learn. (Naurah , et al., 2022).

2.2.2 Girls' attitude towards chemistry

Understanding girls' attitude towards chemistry, and knowing the benefits of chemistry as a subject to an individual, play a very big role in their participation during the learning of the subject. (Amoke, 2019). The study further found out that there was a significant difference between boys and girls in terms of attitude towards Chemistry. It is worth mentioning that developing students' positive attitude is necessary because attitude is linked with academic achievement (Abulude, 2016). Having a positive attitude towards Chemistry means that this particular student likes chemistry as a subject. A Student's attitude towards a subject has the ability to promote or demote learning from taking place.

Various research studies have focused on Gender effects in STEM subjects with the main issue being the few numbers of girls opting for mathematics and the other science subjects (Musiimenta1, et al., 2019).They also noted that the Government of Uganda had encouraged girl's participation in STEM subjects by making all science subjects compulsory at ordinary level of education. These efforts could have been more beneficial if combined with a total understanding of the factors that hinder girls' involvement in STEM, and putting strategies to address them.

2.2.3 Parents' career guidance and girls' attitude towards Science

Numerous studies for example; Sheldrake, Mujtaba and Reiss (2017) have found that parent involvement is crucial in influencing students to pursue science related courses. They demonstrated that parents can promote a science culture at home, provide financial support for extracurricular science activities, and advise their children on career options in STEM fields. While their study focused on general attitudes toward science, the current research specifically examines girls' attitude towards Chemistry, highlighting that parental actions directly impact children's attitudes and overall school performance.

Similarly, Sheldrake, Mujtaba, and Reiss (2017) conducted an empirical analysis on science teaching, student attitudes, and aspirations. Their inferential statistical analysis indicated that students' home backgrounds, particularly parental influence, significantly affect their perceived utility of science and enhance their attitudes toward the subject. While their research addressed general sciences, the present study narrows the focus to Chemistry, bridging a gap by incorporating a specific subject into the broader category of science education.

Halim et al. (2018) noted the vital role parents play in educating their children about the importance of science in everyday life. They emphasized that from a young age, parents should instill an

appreciation for science and its relevance. Their study also found that secondary school students in the UK perceive science as uncreative and difficult, with external influences such as family attitudes and gender stereotypes affecting their interest. While these studies reflect contexts from developed countries, this research focuses on Uganda, specifically at Universal Secondary Education schools.

Parental involvement encompasses various forms of engagement, including emotional support, communication about education, participation in school activities, and career guidance. According to Hill and Tyson (2017), effective parental involvement is associated with improved academic outcomes and enhanced motivation in students. In the realm of STEM education, such involvement significantly influences a child's self-efficacy and interest in science subjects.

There are three primary forms of parental involvement and these include; Emotional Support which looks at emotional backing from parents and this creates a safe environment for children to explore their interests (Shimi, et al., 2024) . Therefore, girls receiving positive reinforcement from parents are more likely to develop favorable attitudes toward challenging subjects like science. Another one is Career Guidance where parents discuss career options and sharing experiences encourage exploration in various fields (Wilson, Minhas, Bello, & Curran, 2020).They noted that girls whose parents actively engage in career discussions are more likely to consider STEM careers. Lastly Active Participation that is involvement in school events and STEM-related activities fosters a sense of belonging. Parents attending science fairs or encouraging participation in science clubs can enhance their daughters' interest and confidence in science (Maltese & Tai, 2017).

Parents also play a pivotal role in exposing their daughters to various career paths (Wang, Degol, & Henry, 2019) .They also found out that girls receiving guidance from parents regarding science career options are more likely to develop aspirations in these areas. This exposure helps demystify science, making it more accessible. Furthermore, parents serve as role models; their attitudes toward science significantly impact their daughters' perceptions. When parents express enthusiasm for science, girls are more likely to adopt a similar attitude (Chiu, 2021).

Parental involvement helps combat stereotypes by promoting a growth mindset, emphasizing that abilities in science are not gender-specific. Zhang et al. (2022) found that parental support in challenging gender norms contributes to more positive attitudes toward science among girls. Bandura (1997) suggested that self-efficacy is a belief in one's capabilities and is crucial in approaching challenges. When parents provide support and resources for science-related activities, girls are more likely to feel confident in their abilities.

Engaging in science-related activities with parents, fosters collaboration and communication skills. Carpentier et al. (2019) highlighted that girls participating in science fairs with their parents reported more positive attitudes toward group work, enhancing their overall interest in the subject.

To foster a positive attitude toward Chemistry among girls, parents must maintain open lines of communication about education and career aspirations. Hill & Smith. (2019) assert that such communication leads to increased engagement and interest in academic subjects. Encouraging daughters to explore various science-related activities is also essential. Maltese and Tai (2017) emphasized that hands-on experiences are vital for developing a positive attitude toward science. Additionally, promoting resilience and a growth mindset is crucial for helping girls navigate challenges in science (Zhang et al., 2022).

In Conclusion, parental involvement through career guidance and active engagement can significantly influence girls' self-efficacy, aspirations, and attitudes toward STEM subjects, particularly Chemistry.

2.2.4 Parents' provision of scholastic materials and girl's attitudes towards Science

Research has consistently shown that parental involvement is positively correlated with students' academic success. According to Fan & Chen, (2017), parental involvement encompasses various dimensions, including home-based involvement, school-based involvement, and academic socialization. Home-based involvement, particularly the provision of resources and materials, can enhance students' learning experiences and outcomes. When parents actively engage in their children's education by providing Scholastic materials, they create an environment that values learning and encourages exploration. The availability of Scholastic materials such as science books, experiments' kits, and educational software can significantly influence girls' interest in the subject. A study by Hill and Tyson (2018) highlighted that girls who have access to diverse educational resources at home are more likely to develop positive attitudes towards science. This is particularly crucial given the historical underrepresentation of females in science-related fields, which can contribute to a lack of confidence and interest among girls.

The type and quality of Scholastic materials provided by parents has a profound impact on girls' attitudes toward science (Kaziro & Musiimenta, 2024). Research by (Kibga, Sentongo, & Gakuba, 2021) emphasized that hands-on materials and interactive resources can stimulate curiosity and engagement in scientific concepts. When parents provide these types of materials, they not only enhance girls' understanding of scientific principles but also foster a sense of agency and competence. For instance, when girls engage in science experiments at home, they develop critical

thinking and problem-solving skills, which can lead to a more favorable attitude toward the subject. The National Science Education Standards (NSES) underscore the importance of experiential learning in science, stating that students learn best when they can actively participate in the process. Consequently, parents who supply their daughters with scientific materials are effectively endorsing this hands-on approach to learning, which can cultivate a positive disposition towards science.

The socioeconomic status of families plays a crucial role in the availability of Scholastic materials. Studies indicate that families with higher socioeconomic status are more likely to provide a wider variety of educational resources, including those related to science (Gemechu, 2018) This disparity can create an uneven playing field for girls from lower socioeconomic backgrounds, who may lack access to the same quality and quantity of Scholastic materials as their more affluent peers. This lack of resources can lead to diminished self-efficacy and interest in science among girls from disadvantaged backgrounds. A study by (Perera, Bomhoff, & Lee, 2014) when parents get involved in children's science learning, directly or indirectly, students in turn, achieve better in science. Hence, the provision of Scholastic materials is not just a matter of availability but is deeply intertwined with issues of equity and access in education.

Cultural attitudes toward gender roles also shape how parents provide Scholastic materials and support their daughters' engagement with science. In many cultures, traditional gender norms dictate that science and technology are male-dominated fields, which can discourage girls from pursuing interests in these areas. As noted by Paul & Perry-Jenkins (2016), when parents hold stereotypical beliefs about gender roles, they may unconsciously limit their daughters' access to science-related materials and experiences. But when parents who challenge these norms and actively promote science education for their daughters can significantly alter their attitudes. For

example, parents can encourage participation in science fairs, enroll their daughters in science camps, or provide access to science-related media. This proactive approach can help girls develop a sense of belonging in the scientific community, thereby fostering more positive attitudes toward science.

Bandura's (2017) theory of self-efficacy asserts that individuals are more likely to engage in activities they believe they can succeed in. When parents provide Scholastic materials that enable girls to explore scientific concepts, they enhance their daughters' confidence and belief in their abilities. Research conducted by Schunk and Zimmerman (2018) supports this notion, indicating that girls who perceive themselves as competent in science are more likely to develop a sustained interest in the subject. Parental support, through the provision of resources, serves to reinforce this self-efficacy, creating a positive feedback loop where increased confidence leads to greater engagement and interest in science.

2.2.5 Parents' monitoring of students learning and girls' attitude towards Science

In recent years, parent involvement, particularly in the form of monitoring, has been found to affect girls' academic attitudes and motivations, especially in traditionally male-dominated fields like science (Kathlene, et al, 2016). In particular, active parental monitoring keeping track of homework, projects, and overall academic performance can provide students with a supportive framework that encourages them to thrive in their studies. For girls, the impact of parental involvement is particularly significant. Studies have shown that girls often internalize societal stereotypes about their capabilities in STEM (Science, Technology, Engineering, and Mathematics) fields. According to a study by (Utami, 2022), girls who perceive their parents as actively involved in their education are more likely to develop a positive attitude toward science.

This suggests that parental monitoring can serve as a protective factor against negative stereotypes, fostering a more encouraging environment for girls to explore scientific subjects.

According to (Kathlene, et al., 2016), parental involvement in children's learning has high and substantial effect on student's attitudes towards learning. Besides this study was in primary section while this current study was in secondary school targeting secondary school girl's attitude towards chemistry.

Monitoring takes various forms, from checking homework and grades to discussing academic goals and aspirations. Research by (Wanyonyi, Dr,Demtilla, & Dr,Tecla, 2022) emphasizes that parental monitoring is not merely about oversight but also includes active engagement with the child's educational journey. Parents who discuss schoolwork with their daughters, help with assignments, and show interest in their academic pursuits can significantly impact their daughters' attitudes toward learning effective monitoring involves a balance between support and autonomy. While it's essential for parents to be aware of their children's academic activities, overly intrusive monitoring can lead to anxiety and resistance. Therefore, a supportive approach that encourages independence while providing guidance can enhance girls' confidence and interest in science.

One of the most significant barriers to girls' engagement in science is the prevalence of gender stereotypes that suggest girls are less capable in scientific fields. Research by (Ferati, et al., 2023) highlights how these stereotypes can influence girls' self-perception and academic choices. Parental monitoring that actively counters these stereotypes can play a crucial role in shaping girls' attitudes toward science. So, parents who express confidence in their abilities, it has been found to mitigate the negative effects of societal stereotypes. For example, a study by Beasley and Fischer (2012) found that girls who received encouragement from their parents were more likely to

participate in science-related extracurricular activities, which in turn fostered a more positive attitude toward science. This indicates that parental monitoring can contribute to a more empowering narrative for girls, helping them to envision themselves as capable scientists.

It must be noted that the impact of parental monitoring on girls' attitudes toward science is also influenced by the broader educational environment. For example, Research by Sadler et al. (2019) indicates that school programs promoting parental involvement in STEM education can enhance girls' interest and performance in these fields. For instance, workshops that educate parents about the importance of science education and provide strategies for effective monitoring can create a more supportive home environment. This partnership between parents and schools can help girls feel more empowered to pursue science, as they receive reinforcement from multiple sources.

Active parent involvement, particularly in the form of monitoring, significantly influences girls' academic motivation and interest in science. Parents can create an environment that encourages girls to explore scientific fields

In conclusion, literature gaps were identified in the related literature and these include; there was no work on parent involvement and girls' attitude towards chemistry. Most work is on parent involvement and students' academic performance.

Chapter Three

Methodology

3.0 Introduction

This chapter presents the study design, study population, sample size, sampling strategies, data collection methods, data collection instruments, data quality control, data analysis and ethical considerations.

3.1 Research Design

The research was carried out using cross sectional survey design. This design enabled the researcher to collect data from a defined population at a single point in time therefore it was less time consuming. (Amin, 2005). The design enabled the researcher to find the relationship between the study variables (Bailey, 2012). A Quantitative approach was employed during the execution of the study

3.2 Study Area

The study was carried out in Kampala City, amongst the five divisions which make up the city. In total Kampala has a total of 11 USE Schools whereby Kawempe Division has one USE School, Central Division has 4 schools whereas Makindye, Nakawa and Rubaga each poses two USE schools.

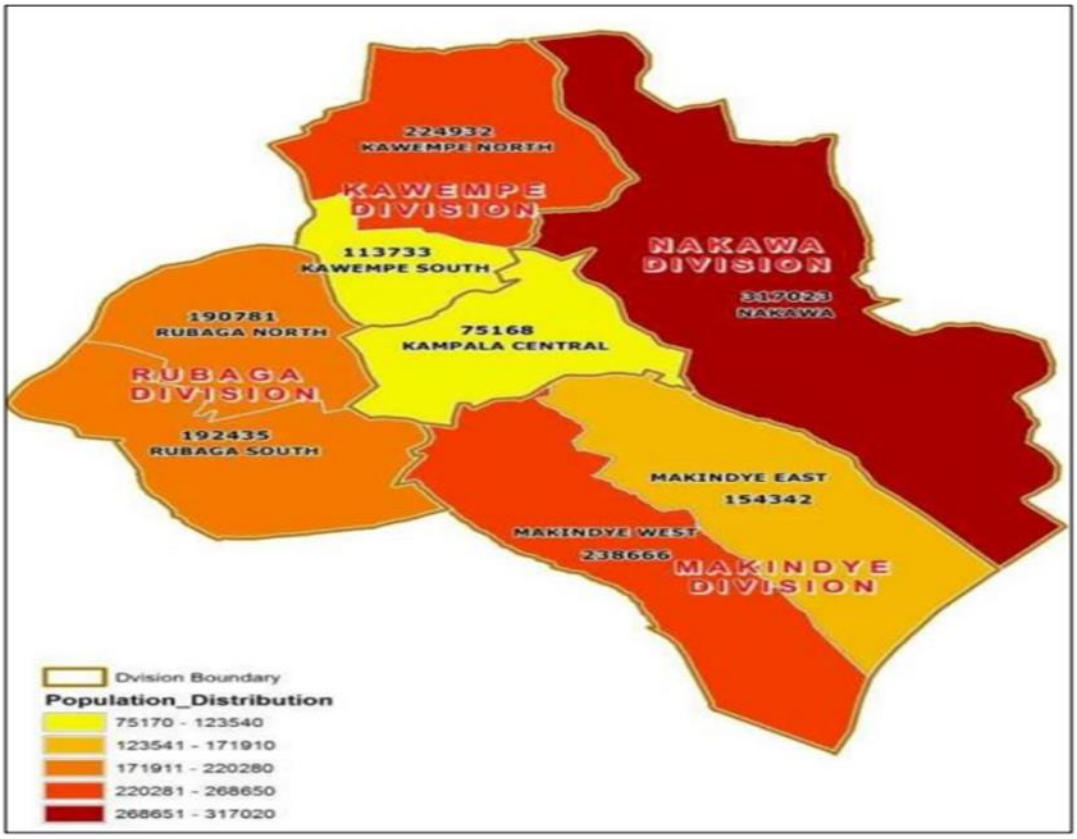

Figure 3.1. Map of Kampala city, Uganda (*Education | Makindye Ssabagabo Municipal Council*, n.d.).

3.3 Study Population

The study focused on Female Secondary Schools Students within Kampala who are studying from Universal Secondary Education Schools at O' Level. The table below shows the total population of female students in each respective school chosen in the study.

Table 3.1 Showing the Total Population of Girls in O'Level in each Sampled School

School	**Number of girls in O' Level**
KHS	430
VVSSS	405
KSS	521
NMHS	379
LSSS	734
Total	2469

The population of the study included number of girls from all O'Level classes from senior One to Senior Four of the five selected schools. One school was selected from each of the five divisions of Kampala City.

3.4 Sample size

To determine the sample size Cochran sample size formula was used because the population size of girls in these schools of was very large yet the standard deviation was not known

Cochran sample size formula

$$N = \frac{Z^2 \times p(1-p)}{e^2}$$

N – Sample Size

Z – Z score got from Confidence Interval (95%) = 1.96

p – estimated proportion of the population (0.5)

e – margin of error

$$N = \frac{3.8416 \times 0.5 \times 0.5}{0.001936}$$

N = 496 students.

In order to effectively distribute the total number of respondents in all the school's 4 students were added as respondents to make the number 500 respondents that were interviewed.

3.3 Sampling technique

This study used stratified sampling and simple random sampling ways to select participants.

3.3.1 Stratified random sampling

The researcher employed stratified random sampling technique in order to choose the schools to take part in the study. This was done by dividing the population into 5 strata considering the five divisions in the city that is Kawempe, Rubaga, Makindye, Nakawa, and Central Division. This ensured that all divisions were represented in school selection. To select schools from each division, the researcher first obtained a list of all Universal Secondary Education schools from the KCCA website. The list indicated the divisions in which the different schools were found. One

school was chosen from each of the divisions that make up Kampala city using simple random sampling. The chosen schools included KHS from central division, VVSSS from Kawempe Division, KSS from Makindye division, NMHS from Rubaga division and lastly LSSS from Nakawa Division.

Simple random sampling was then used to select girls from each class to be part of the study.

3.3.2 Simple random sampling

The researcher obtained class lists of girls from each stream and chose six girls from the class lists at random. The researcher counted names at intervals of six on each class list, all girls who landed on the sixth position during the counting participated in the study. This was done for S.2, S.3 and S.4 to obtain a total of 72. Since the S.1 girls were more than those in other classes in all the schools (on average each stream had 48 girls), so 7 girls were chosen from each of the four streams of S.1. Therefore, from S.1 a total of 28 girls were chosen giving an overall total of 100 girls from each school leading to a sample size of 500 girls for the study.

Simple random sampling ensured that there was no bias and every student had equal chances to take part in the study.

Table 3.2: showing Sampling Techniques used to choose schools and students

Category	Population	Sample size	Sampling technique
Schools	11	5	Stratified random sampling
students	2469	500	Simple random sampling

3.4 Data collection instruments

The researcher used a self-administered questionnaire, interview guide and a focus group Discussion guide to collect data from the respondents.

3.4.1 A Self-Administered Questionnaire (SAQ)

The Self-Administered questionnaire (SAQ) that was used by the researcher to collect information, was constructed by the researcher after review of literature. The self–administered questionnaire (SAQ) (Appendix A) was used to collect data on girls' attitudes towards chemistry and parent involvement. Section A focused on the respondents' bio data where it examined the respondents age, and class. Section B measured student attitudes towards Chemistry using 9 questions with 5-point Likert scale ranging from strongly disagree to strongly agree. Section C measured the girls' views on parent involvement through career guidance, provision of Scholastic materials and monitoring girls learning. It had 15 questions measured on a 5-point Likert scale. The Self-Administered Questionnaire was used because the students were able to read and interpret items on their own and help to save time and avoid ambiguity (Judith, 1997).

3.5 Data Quality Control

This section gave an account of how the validity and reliability of the research instrument was handled.

3.5.1 Validity of the Research Instruments

The questionnaire was tested for validity as described below before being used. The Researcher shared the instrument with her supervisors who checked on its correctness to see if it could be used to give valid data that addressed the specific objectives of the study. To ensure validity the research instrument was reviewed by 4 subject matter experts where they evaluated the instrument to ensure they it was adequate for the study. Each expert further provided recommendations on adjustments which could make the research instrument valid, I incorporated the recommendations and further the recommendations were assessed by the supervisor until the research instrument was ready to be taken to the field.

3.5.2 Reliability

The researcher pilot tested the tool of data collection before using it, to check whether different respondents understood the questions in the same way. In order to get the reliability of the designed instrument, the questionnaire was piloted in Mengo Senior School, one of the government schools in Kampala. Mengo Senior School was chosen because it has some similarities with Universal Secondary Education Schools in Kampala city, for example it is a day School, it is also in Kampala city.so it was suitable for a pilot study. The sample of the pilot study was 40 girls from 'O' Level. The pilot study was carried out in a school that is not purely USE. Using the results obtained, the Cronbach's Coefficient results for reliability are presented in Table 3.2 below.

Table 3.3: Reliability analysis results for the Questionnaire

Dimension	items	Score	Cronbach alpha coefficient
Student's attitudes towards chemistry	9	1 – 5	0.79
Parent involvement through career guidance and counseling	6	1 – 5	0.93
Parent involvement through provision of Scholastic materials	5	1 – 5	0.84
Parent involvement through monitoring the girl's chemistry work.	5	1 – 5	0.72

The questionnaire was analyzed using Cronbach's Alpha coefficient method. The questionnaire's, α value was found to be greater than 0.7 and it was regarded as reliable (Amin, 2005).

3.6 Procedure of data collection

After ascertaining the suitability of the proposal and research instruments, permission to conduct the study was obtained from the Dean of the School of Education, Makerere University, College of Education and External Studies who provided the researcher with an introductory letter that was used to seek permission to conduct the research.

The researcher presented the introductory letter to the headteachers of the five selected Universal Secondary Education (USE) schools to seek their permission and cooperation for the study.

The researcher then coordinated with the school administration and chose two prefects who moved per stream reading out the names of the girls who had been randomly picked as per the class lists. The girls whose names had been read were told to assemble in a stated room at a particular time preferably break time. The girls would then meet with the researcher who personally administered the questionnaires to the them. The purpose of the study was explained, instructions for completing the questionnaire were provided, and the researcher remained present to address any clarifications. The exercise took approximately 30-45 minutes. A total of 500 questionnaires were distributed across the five schools.

All completed questionnaires were collected and securely stored for data analysis.

3.7 Data analysis

The quantitative data from the questionnaire was edited, categorized, coded and later entered in the computer using the Statistical Package for the Social Sciences (SPSS). The data was analyzed using the SPSS to generate summary of frequency table and graphics. The actual data analysis at univariate level was based on relative frequencies and at bivariate level was based on Pearson's Linear Correlation methods using SPSS to find the co-relation between categories Parent involvement and girls' attitude towards chemistry. Frequencies for the respective categorical variable were further analyzed using SPSS.

3.8 Ethical Considerations

The researcher first obtained an introductory letter from the University that authorized her to go to the field to collect data from the respondents. She proceeded to the Head Teachers of the five Universal Secondary Education schools that had been selected for the study to ask for permission

to do the research. The researcher exercised high degree of confidentiality at all times when collecting data from all the respondents. Respondents were assured of confidentiality. the researcher was open and also revealed to them the true reason for carrying out research to avoid hiding any information. The researcher also exercised high degree of honesty in all scientific communications.

Chapter Four

Data Presentation, Interpretation and Analysis

4.0 Introduction

This chapter presents the research findings and interpretation of results. The correlation between the two variables which was to examine the relationship between parent involvement and girls' attitude towards chemistry at Ordinary level, a case of Universal Secondary Education schools in Kampala, was investigated using Pearson's product correlational coefficient.

4.1 Demographic Characteristics

Respondents were asked to indicate their age, the name of the school they attended and the class they belonged to. Frequencies were obtained and computed into percentages as shown in Table 1.

Table 4.1: Demographic characteristics of students who participated in the study

Variables	Levels	Frequency	Percentage
School	KHS	100	25
	VVSSS	100	25
	KSS	100	25
	NMHS	100	25
	LSSS	100	25
Class	Senior One	76	15.2
	Senior Two	165	33
	Senior Three	167	33.4
	Senior Four	92	18.4
Age	12-15 Years	380	76
	16 and above	120	24
Total		**500**	**100**

The sample was distributed equally across all five schools. Whereby each school contributed exactly 100 girls (25% of the total sample each. The majority of the respondents were in Senior Two (33%) and Senior Three (33.4%). Senior One had 15.2% and Senior Four had 18.4%. The vast majority of the girls (76%)

were between 12 and 15 years old. Only 24% were 16 years or older. This shows that the sample primarily consisted of adolescents in the typical age range for O-Level studies.

4.2 Attitudes towards chemistry learning.

Respondents were requested in the questionnaire to reveal their individual levels of attitudes towards chemistry learning. The frequencies attained were translated into percentages, means and standard deviations as shown in

Table 4.2: Student's Attitudes towards Chemistry Learning.

Items	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std.
If chemistry was not a compulsory subject, I would not opt for it	32.0	19	10	21.0	18.0	2.7500	1.570
I believe I am capable of doing chemistry	4.0	10.0	13.0	36.0	37.0	3.780	1.093
I doubt I can ever pass chemistry examinations at the end of the year	42.0	23.0	13.0	10.0	12.0	3.884	1.096
I am willing to spend more time reading chemistry text books	2.0	15.0	7.0	42.0	34.0	2.596	1.124
I like chemistry more than any other subject	17.0	32.0	29.0	15.0%	7.0	3.365	1.299
My response towards Chemistry is positive	10.0	23.0	8.0	40.0	19.0	3.057	1.513
The concepts theories and formulae of chemistry are too difficult to understand compared to other science subjects.	15.0	14.0	4.0	35.0	32.0	3.557	1.460
Chemistry lessons are interesting	6.0	6.0	6.0%	37.0	45.0	4.115	1.131
I like doing chemistry experiments	21.0	23.0%	8.0%	25%	23.0	3.0577	1.516
Overall mean and standard deviation						3.35	1.31

The overall mean score of 3.35 revealed that there was a moderately positive attitude towards the subject, although responses vary significantly across different items. A notable finding is that 32% of the girls strongly disagreed with the statement that they would choose chemistry if it were not

compulsory, resulting in a mean score of 2.75. This indicates that many students view chemistry as more of an obligation than a subject of interest, which could affect their motivation and engagement.

Confidence in their abilities is another critical aspect reflected in the data. 37% of the girls agreed that they believe they are capable of doing chemistry, as indicated by a mean score of 3.78, also a considerable number (42%) disagreed with the statement that they doubted they could ever pass chemistry examinations at the end of the year with a mean score of 3.88.

Further 45% found chemistry lessons interesting, with a high mean score of 4.11, only 34% expressed a willingness to spend more time studying the subject, reflected in a lower mean score of 2.60. Additionally, 32% felt that the theories and formulas in chemistry were too difficult to understand compared to other sciences, with a mean of 3.56. This indicates that the majority of the girls have a positive attitude towards chemistry.

4.3 Career guidance

Respondents were requested in the questionnaire to reveal the level of career guidance attained from their parents towards chemistry learning. The frequencies attained were translated into percentages, means and standard deviations as shown in Table 4.3

Table 4.3:Perceived Parent involvement through Career guidance

Indicators of parental involvement through career guidance.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Std
My parents are educated and are doing jobs related to what they studied	6.0	6.0	40.0	26.0	11.0	3.81	1.51
My parents prefer me to do a career of their choice	2.0	23.0	46.0	24.0	5.0	2.56	1.52
My parents career choice for me is within my expectations	5.0	24.0	44.0	18.0	8.0	2.60	1.56
My parents talk to me about what I should be in the future	7.0	15.0	35.0	24.0	18.0	2.42	1.49
My parents have exposed me to career of their choice	6.0	27.0	33.0	17.0	17.0	2.21	1.41
What my parents want me to be in future is different from what I want	10.0	28.0	35.0	16.0	8.0	3.06	1.57
Overall mean and standard deviation						**2.78**	1.867

The overall mean score of 2.78 indicates a relatively low perception of parental support in career-related matters. A key finding is that 12% of the girls felt their parents are educated and work in fields related to their studies, yielding a mean score of 3.81. This suggests that some parents possess relevant educational backgrounds, which could positively influence their daughters' career aspirations. About parental preferences for their career choices, the mean score was lower at 2.56, indicating a divide between parental expectations and the daughters' desires. A large portion of respondents felt neutral or disagreed with their parents' career preferences, highlighting potential conflicts between parental ambitions and the students' personal career aspirations.

With a low mean score of 2.42, indicated that many girls do not feel that their parents actively engage in these conversations. Additionally, 35% of the respondents indicated that their parents'

expectations differ from their own aspirations, with a mean score of 3.06. This difference reveals that whereas parent involvement is present but there was limited open communication.

4.4 Provision of scholastic materials

Respondents were requested in the questionnaire to reveal their parents' level of provision of scholastic materials towards chemistry learning. The frequencies attained were translated into percentages, means and standard deviations as shown in Table 4.4

Table 4.4: Indicators of provision of Scholastic materials

Indicators of parental involvement though provision of Scholastic materials	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Standard deviation
My parents provide me with chemistry text books	20	24	15	30	11	2.634	1.596
My parents provide me with adequate Chemistry reading materials	18	22	26	24	11	2.576	1.538
My parents provide me with stationary like exercise books, pens, pencils when I need them.	21	20	16	33	10	4.019	1.393
My parents ensure that they contribute towards chemistry practicals by using practical books	18	20	17	22	23	3.038	1.533
My parents believe that it is the responsibility of the government to provide Scholastic materials to their children not them	23	22	16	30	9	2.288	1.499
Overall mean and standard deviation						3.904	1.513

The study findings found that the overall mean score of 3.904 suggests a high level of perceived parental involvement in this aspect, the mean scores for the items regarding the provision of chemistry textbooks (2.634) and adequate reading materials (2.576) are neutral indicating that many girls felt neutral about the availability of these resources.

On a more positive note, the provision of stationery such as exercise books and pens received a higher mean score of 4.019, suggesting that parents are more supportive in providing these essential materials. Additionally, parents showed some responsibility towards supporting chemistry practicals, as indicated by a mean score of 3.038. However, a significant portion of parents (30%) believed it is the government's responsibility to supply Scholastic materials, reflected in a low mean score of 2.288. This perspective limited parental engagement in providing necessary resources for their daughters' education.

4.5 Monitoring of students learning.

Respondents were requested in the questionnaire to reveal the level of monitoring of their learning by their parents towards chemistry learning. The frequencies attained were translated into percentages, means and standard deviations as shown in Table 4.3

Table 4.5: Perceived Parent Involvement through Monitoring of Girls' Learning

Indicators of parental involvement through Monitoring and supervision	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Std.
My parents visit me at school	18	26	22	24	10.0	3.211	1.459
My parents talk to my chemistry teacher while at school	22	19	19	26	16.0	1.692	1.020
My parents check my homework whenever they are at home	21	23	14	27	15.0	4.442	1.551
My parents assist me to do homework given by the teachers in class and usually sign my books	17	20	20	30	13.0	2.480	1.590
My parents check on my school attendance	23	17	21	23	10.0	3.096	1.706
Overall mean and standard deviation						3.584	1.406

The overall mean score of 3.584 suggests that, on average, there is a moderate level of parental involvement across the various indicators assessed. The mean score of 3.211 for school visits indicates a moderate level of parental engagement, with 18% of respondents strongly agreeing that their parents visit them at school. This suggests that while some parents are actively involved, thus impacting their daughters' academic experiences. The mean score of 1.692 highlights a significant gap, as only 22% of students strongly agreed that their parents talk to their chemistry teachers. This low level of engagement may limit parents' awareness of their daughters' academic challenges and progress, reducing the support they can provide and potentially affecting academic outcomes. In terms of checking homework, the findings are more encouraging, with a mean score of 4.442. This indicates that a considerable number of parents actively engage in this aspect of their daughters' education, suggesting that many prioritize academic oversight at home. Such involvement can positively impact students' comprehension of the subject matter, fostering a better learning environment.

The mean score of 2.480 for assistance with homework indicates that fewer parents are helping with assignments or signing their daughters' books. Lastly, the score of 3.096 for monitoring attendance reflects a reasonable level of parental involvement in checking school attendance. Overall monitoring and supervision are moderately carried out by parents.

4.6 Perceived Parent involvement through career guidance and girl's attitudes towards chemistry learning

In order to find out the relationship between perceived parent involvement through career guidance and girl's attitudes towards chemistry learning, Pearson correlation was used and the findings are presented below.

Table 4.6: Pearson correlation analysis between perceived parent involvement through career guidance and girl's attitudes towards chemistry learning.

		Attitude towards chemistry Learning	**Parental involvement through career guidance.**
Attitudes towards chemistry	Pearson correlation Sig. 2 tailed	1	0.378** 0.008
	N	500	500
Parental involvement in guidance and counseling	Pearson correlation Sig. 2 tailed	0.378** 0.008	1
	N	500	500

Correlation is significant at 0.05 level (2. tailed)

Results in Table 4.6 above show that there is a significant relationship between attitudes towards chemistry and Parent involvement in career guidance (r_s = 0.378**) since, p (0.008) <0.05. Therefore, hypothesis which stated that there is no significant relationship among girls' attitudes towards chemistry and parent involvement in guidance was rejected, the alternative hypothesis is retained and it is concluded that there is a significant relationship between girls' attitudes towards chemistry and Parent involvement in guidance. The findings reveal that parental involvement through guidance led to improvements in girls' attitudes towards chemistry.

4.7 Perceived parent involvement through provision of Scholastic materials and girl's attitudes towards chemistry Learning.

In order to find out the relationship between perceived parent involvement through provision of Scholastic materials and girl's attitudes towards chemistry, Pearson correlation was used and the findings are presented below.

Table 4.7: Pearson correlation analysis between perceived parent involvement through provision of Scholastic materials and girl's attitudes towards chemistry Learning.

		Attitude towards chemistry Learning.	**Parental involvement through provision of scholastic materials.**
Attitude towards chemistry	Pearson correlation	1	0.873**
	Sig. 2 tailed		0.000
	N	500	500
Parental involvement in provision of Scholastic materials	Pearson correlation	0.873**	1
	Sig. 2 tailed	0.000	
	N	500	500

Correlation is significant at 0.05 level (2. tailed)

Results in Table above show that there is a significant relationship between perceived parent involvement through provision of Scholastic materials and girls' attitudes towards chemistry learning at O'Level. (r_s = 0.873**) since, p (0.000) <0.05. Therefore, hypothesis which stated that there is no significant relationship among girls' attitudes towards chemistry and parent involvement in provision of Scholastic materials is rejected, the alternative hypothesis is retained and it is concluded that there is a significant relationship between Attitudes towards chemistry and Parent involvement through provision of Scholastic materials.

4.8 Perceived Parent Involvement through Monitoring of girls learning and Girls' attitudes towards chemistry Learning

In order to find out the relationship between perceived parent involvement through monitoring of girls learning and girl's attitudes towards chemistry learning, Pearson correlation was used and the findings are presented below.

Table 4.8: Pearson's correlation coefficient index for perceived parent involvement through monitoring of girls learning and girls' attitude towards chemistry learning

		Attitude towards chemistry	**Parental involvement in monitoring students learning**
Attitude towards chemistry	Pearson correlation	1	0.663
	Sig. 2 tailed		0.001
	N	500	500
Parental involvement in monitoring students learning	Pearson correlation	0.663	1
	Sig. 2 tailed	0.001	
	N	500	500

Correlation is significant at 0.05 level (2. tailed)

Results in Table above show that there is a significant relationship between Attitudes towards chemistry and Parental involvement monitoring students learning and supervision (r_s = 0.663**) since, p (0.001) <0.05. Therefore, hypothesis which stated that there is no significant relationship among girls' attitudes towards chemistry and parental involvement in monitoring students learning is rejected, the alternative hypothesis is retained and it is concluded that there is a significant relationship between Attitudes towards chemistry and Parental involvement through provision of Scholastic materials.

After the intervention there the post-intervention results revealed that there was a strong positive coefficient of 0.663 with a p-value of 0.001<0.05. This revealed that after the intervention parent involvement in monitoring students learning was significant in influencing girls' attitudes towards chemistry.

Chapter Five

Discussion, Conclusions and Recommendations

5.0 Introduction

In this chapter the discussion of the study findings, conclusions, recommendations and areas for further research was done. These were offered in the subsequent sub-sections below.

5.1 Discussion

In this section the discussion of findings was done. This discussion followed the three study specific objectives that is: the relationship between parent involvement through career guidance, provision of scholastic materials and monitoring of girls learning and girls' attitudes towards chemistry at ordinary level in Universal Secondary Education in Kampala District.

5.1.1 Relationship between parent involvement through career guidance and girls' attitude towards chemistry Learning at O' Level

The first alternative hypothesis of the study stated that there is a significant relationship between perceived parent involvement through career guidance and girls' attitude towards chemistry at ordinary level. Findings in the study confirmed that there is a significant relationship between perceived parent involvement through career guidance and girls' attitude towards chemistry at ordinary level.

When Parents engage in discussions about career options related to chemistry, they can spark interest and motivation in their daughters. So, by showing the relevance of chemistry in various professions—such as medicine, pharmacology, and environmental science-parents help students to see the subject not just as an academic requirement but as a pathway to fulfilling careers. This is in line with studies like Wilson, Minhas, Bello, & Curran, 2020,Shimi, et al., 2024,Hill and Tyson,2017 which suggest that "Parents who engage in discussions about career paths

significantly influence their children's perceptions of academic subjects, framing education within the context of future opportunities, parents can inspire a deeper interest in challenging subjects." This means that when parents link subjects like chemistry to potential careers, it enhances students' motivation, making the content more relevant". Also, Shim, et al,2024 found that "active parental participation in career discussions is a strong predictor of students' academic motivation." Whereby they conclude that when parents emphasize the importance of subjects like chemistry for college and career readiness, students are more likely to engage deeply with the material." This can also be found in Wilson, Minhas, Bello & Curran (2020) who state that, "Parental discussions about careers in science and technology significantly enhance children's interest in related academic subjects." They further assert, "When parents help their children connect academic content to real-world applications, it fosters greater engagement and enthusiasm for learning."

Through Career guidance where parents encourage their daughters to pursue challenging subjects like chemistry, this is done through helping them mitigate the feelings of discouragement, particularly when students encounter complex concepts. This is in line with Hill and Tyson, (2017) in their study conducted in the United States where they found that parents who provide emotional encouragement and support, children are more likely to develop a positive attitude toward their studies." In another study by (Mengting , Rui, Chunping , & Mingren , 2024) in Hong Kong found that emotional support from parents significantly influences students' academic self-efficacy and resilience. They argue that active emotional backing from parents leads to increased motivation and fosters a more positive attitude toward challenging subjects. So, this indicates that emotional support from parents is crucial for helping children navigate academic challenges, particularly in demanding subjects like chemistry.

Though guidance creates an environment where girls feel comfortable expressing their concerns and questions about chemistry, this open communication helps students articulate their interests and anxieties to their parents. This helps parents to enhance their daughters' understanding and appreciation of the subject. This is in line with (Pontz, 2024) who in their study found out that Open communication between parents and children about specific academic subjects helps students articulate their interests and concerns, thereby creating a supportive environment for learning." Also, Hill, & Tyson, (2017) in their study among middle school students in United States found that when parents engage in discussions about their children's academic challenges, it fosters a sense of support and understanding that enhances students' attitudes toward school. This shows that dialogue and open communication fostered among student and parent on chemistry causes a student to develop a positive attitude towards it.

The study findings are in agreement with Halim, Rahman and Mohtar (2019) who theoretically noted that parents also play a vital role in educating their children regarding the importance of science in their daily life. So, parents should always take the opportunity to educate their children from a young age to appreciate chemistry and instill an interest in science and science related careers.

5.1.2 Relationship between perceived parent involvement through provision of scholastic materials and girl's attitudes towards chemistry Learning at O' Level

The second alternative hypothesis of the study stated that there is a significant relationship between perceived parent involvement through provision of chemistry Scholastic-scholastic materials and girls' attitudes towards chemistry at ordinary level. Findings in the study confirmed that there is a significant relationship between perceived parent involvement through provision of scholastic materials and girls' attitudes towards chemistry at ordinary level.

The provision of chemistry Scholastic materials can significantly influence girls' attitudes toward chemistry in several key ways:

Materials such as hands-on kits, digital simulations, and visual aids make chemistry more engaging. When girls see and manipulate materials, they develop a greater interest in the subject. So Scholastic materials that relate chemistry to real-world applications, particularly those relevant to girls' lives, can increase their motivation to learn. This is in line with (Utami & Sundari, 2019)who in their study found that inquiry-based learning (IBL) enhances students' self-efficacy in Chemistry," which is crucial for engagement. They noted that "practical work refers to activities that engage learners in the process of making observations, experimenting, and deducing explanations," thereby making the learning experience more interactive and engaging for students, including girls. Also, (Bazie, Bekele , Workneh, & Estifanos, 2024) asserted that experiments carried out virtually using ICT are called virtual laboratory (VLab) and they enhance the interaction of teachers and students during the experiment." The authors argue that such interactive materials can "increase students' interest in science," particularly among girls who may feel more comfortable engaging with technology only if they have the Scholastic materials available for them to fully engage in the exercise.

Materials that use clear, inclusive language can help demystify complex concepts. This can lead to increased self-efficacy among girls who may feel intimidated by the subject. Including stories or examples of female chemists in Scholastic materials can inspire girls and help them envision themselves in similar roles. For instance, (Tetyana & Tetiana, 2024) found that "interactive learning materials foster greater confidence in learners, particularly girls, by allowing them to engage more deeply with the content. Parents are also encouraged to provide supportive Scholastic

materials that promote self-efficacy that can help girls overcome barriers and build their confidence in chemistry.

Materials designed for group work encourage collaboration and peer support. This foster a sense of community and belonging, which is crucial for girls in studying chemistry which is traditionally male-dominated. Collaborative projects that allow for diverse input help girls feel valued and encourage them to share their ideas. This is in line with (Elizabeth Ashley Fox-Jensen, 2021)

who using her study in Sweden found that "collaborative learning environments foster a sense of togetherness among girls studying science subjects This indicates that working together on chemistry projects enhances engagement. This suggests that hands-on chemistry experiments foster strong peer relationships among girls hence it is important for girls to have the Scholastic materials needed of them during chemistry lessons.

Overall, thoughtfully designed chemistry Scholastic materials can create a more supportive and engaging learning environment for girls. By fostering interest, building confidence, promoting collaboration, and addressing stereotypes, these materials can significantly improve girls' attitudes toward chemistry and encourage their participation in the field.

5.1.3 Relationship between perceived parent involvement through monitoring girls learning and girls' attitude towards chemistry Learning at O' Level

The third alternative hypothesis of the study stated that there is a significant relationship between parent involvement through monitoring girls learning and girls' attitudes towards chemistry learning at O' Level. Findings in the study confirmed that there is a significant relationship between perceived parent involvement through monitoring girls learning and girls' attitudes towards chemistry learning at O' Level.

Parents monitor their children's progress in chemistry by putting much emphasis on checking if they have done homework, their report cards and even asking teachers on how their children are fairing in the subjects, helps the girls to remain grounded and strive to improve on their grades and in so doing, their attitudes towards chemistry are improved. This is in line with (Kim , Rochelle, MacAlliste, & Gary , 2013) who found out that children must have a range of learning environments around them. Such learning environments include family, early childhood programs, schools, out-of-school time programs and activities, libraries, museums, and other community-based institutions.

The most effective forms of parental involvement through monitoring are those where parents' work directly with their children. This is in line with (Geduld, 2024) who found that programs that show the most effective results include tutoring, working on homework with children and reading with children. These active forms of parental involvement have had a greater impact on achievement than passive forms of involvement.

In conclusion to a great extent parent involvement in monitoring of students' learning is significantly related with the girl's attitudes towards chemistry.

5.2 Conclusions

The following conclusions were made in the order of the objectives of the study:

Regarding the Influence of perceived parent involvement through career guidance on girls' attitudes towards chemistry learning in O'Level in selected USE Schools in Kampala city, it was concluded that there was a low influence of perceived parental career guidance on girls' attitudes towards chemistry learning given that r_s value of 0.378 was obtained. The influence was found to be in the form of parents talking about students career goals, expectations and choice. Therefore,

the null hypothesis was rejected which stated that there is no statistically significant relationship between perceived Parent involvement through career guidance and girls' attitude towards Chemistry Learning and the alternative hypothesis accepted.

Concerning the Influence of perceived parent involvement through provision of scholastic materials on girls' attitudes towards chemistry learning in O'Level in selected USE Schools in Kampala city, it was concluded that there was a high influence of perceived parent involvement through provision of scholastic materials on girls' attitudes towards chemistry as reflected by the r_s value of 0.873 that was obtained. The influence was found to be in terms of parents providing chemistry textbooks, chemistry notebooks, and chemistry practical books. Therefore, the null hypothesis was rejected which stated that there is no statistically significant relationship between perceived Parent involvement through provision of scholastic materials and girls' attitudes towards Chemistry Learning and hence the alternative hypothesis was accepted.

Regarding the Influence of perceived parent involvement through monitoring of girls learning on girls' attitudes towards chemistry learning in O'Level in selected USE Schools in Kampala city, it was concluded that there was a moderate influence of perceived parental involvement through monitoring of girls learning on girls' attitudes towards chemistry learning given that r_s value of 0.663 was obtained. This influence was found to be in the form of parents' visiting students at school, talking to their chemistry teachers, checking student's chemistry books and checking chemistry class attendance. The null hypothesis was therefore rejected which stated that there is no statistically significant relationship between perceived Parent involvement through monitoring of girls' learning and girls' attitudes towards Chemistry Learning and hence the alternative hypothesis was accepted.

5.3 Recommendations

Headteachers of schools should emphasise career guidance especially doing it on termly basis, reminding students on how chemistry is instrumental in the teaching of science and in ensuring that girls opt for it and excel. This may be done by also indicating the opportunities available in the chemistry field.

Furthermore, schools should be constantly reminding parents to provide chemistry scholastic materials. They may entail; chemistry practical books, chemistry text books, providing support in acquisition of chemicals and other necessary equipment's.

Finally, with the significant findings, schools should encourage parents to carryout constant monitoring of students learning. This might be done by checking student's chemistry note books at least twice a week, checking student's grades at school, monitoring attendance among others.

There are other factors that could be having an impact on girl's attitude towards chemistry like the financial status, location of the school, the administrative strategies, availability of laboratory among others which may call for attention of future researchers to establish how they relate with girls' attitudes towards chemistry.

5.4 Areas for further Research

Due to limitations of time and resource constraints the study was done on parent involvement (career guidance, provision of scholastic materials and monitoring of students learning) and girls' attitude towards chemistry at ordinary level. However, there are other factors that could be having an impact on girl's attitude towards chemistry like the financial status, location of the school, the administrative strategies, availability of laboratory among others which may call for attention of future researchers to establish how they relate with girls' attitudes towards chemistry.

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APPENDICES

Appendix A: A Self-Administered Questionnaire for S.3 Students at Universal Secondary Education

PARENTAL INVOLVEMENT AND STUDENTS ATTITUDES TOWARDS CHEMISTRY

Dear Student,

This is not an examination or test but a questionnaire for the above study seeking your views on chemistry. As a student doing Chemistry, you have been randomly selected to participate in this study. Your responses to the questions will be treated confidentially and for academic purposes only. Please follow instructions provided at the beginning of each section to answer the questions that follow. Your positive response will be highly appreciated.

Yours faithfully,

Wataka Jacqueline.

Section A: Respondents Bio data

In this section you are requested to tick the most appropriate alternative to you.

A1. Gender: 1) Male ☐ 2) Female ☐

A2. Education level of your parents.

Father:

1) None ☐ 2) Primary ☐ 3) UCE ☐ 4) UACE ☐ 5) Certificate ☐ 6) Degree ☐

Mother:

1) None ☐ 2) Primary ☐ 3) UCE ☐ 4) UACE ☐ 5) Certificate ☐ 6) Degree ☐

Guardian:

1) None ☐ 2) Primary ☐ 3) UCE ☐ 4) UACE ☐ 5) Certificate ☐ 6) Degree ☐

A3. Interest in Chemistry: 1) Low ☐ 2) High ☐

Section B. Attitude towards Chemistry

In this section you are requested to tick the most appropriate alternative on items provided using a scale where 1= strongly disagree, 2= disagree, 3= undecided, 4= agree and 5= strongly agree

		1	2	3	4	5
B1	If Chemistry was not a compulsory subject, I would not opt/take for it. .					
B2	I believe I am capable of doing chemistry					
B3	I doubt if I can ever pass chemistry examination at the end of the year.					
B4	I am willing to spend more time reading chemistry textbooks.					
B5	I like Chemistry more than any other subject					
B6	My response towards chemistry tasks is positive					
B7	The concepts, theories and formulas of chemistry are too difficult to understand as compared to other science subjects.					
B8	Chemistry lessons are interesting.					
B9	I like doing chemistry experiments.					

Section C. Parental involvement

This section is divided into three that is parental involvement through career guidance, provision of scholastic materials and parental financial support. On each of these rate yourself on items provided where 1= strongly disagree, 2= disagree, 3= undecided, 4= agree and 5= strongly agree

C1: Parental involvement through career guidance

		1	2	3	4	5
C1.1	My parents are educated and are doing jobs related to what they studied.					
C1.2	My parents prefer me to do a career of their choice					
C1.3	My parents career choice for me is within my expectations					
C1.4	My parents talk to me about what I should be in future					
C1.5	My parents have exposed to me a career of their choice.					
C1.6	What my parents want me to be in future is different from what I want					

C2: Parental provision of Scholastic materials

		1	2	3	4	5
C2.1	My parents provide me with chemistry text books					
C2.2	My parents provide me with adequate chemistry reading materials					
C2.3	My parents provide me with stationary like exercise books, pens, pencils whenever I need them.					
C2.4	My parents ensure that they contribute towards chemistry practicals by buying the practical books.					
C2.5	My parents believe that it's the responsibility of government to provide Scholastic materials to their children not them.					

C3: Parental involvement in monitoring of students learning.

		1	2	3	4	5
C3.1	My parents visit me at school					
C3.2	My parents talk to my chemistry teacher while at school.					
C3.3	My parents check my homework books whenever they are home.					
C3.4	My Parents assist me to do homework given by the teachers in class and usually sign my books.					
C3.5	My parents check on my school attendance					

Thanks, God bless you

Appendix B: Interview Guide for Parents

TOPIC: Parental involvement and girls' attitude towards chemistry at ordinary level in Universal Secondary Education .

Date of Interview……Time……

Name of the Interviewee ……

Stream of child…….. Level of Education……

Venue……

STEP 1: Self Introduction

STEP II: Questions and Discussions.

1. Comment on your daughter's attitude towards chemistry. Is it a positive or a negative one? Why do you say that?

2. What are the reasons that you think have resulted into her having that kind of attitude towards chemistry?

3. What do you do to ensure that your daughter likes chemistry and does well in examinations?

3. Do you think we (you and me) can do something to change the way your daughter perceives chemistry?

4. What can we do so that that your daughter likes and excels in chemistry even at higher institutions of learning?

Thank you so much for your time and assistance

Appendix C: Time Frame

S/ NO	ACTIVITY	PERIOD
1	Discussion of research topic with the supervisor	Jan 2019- December 2019
2	Writing of proposal	Jan 2020- December 2020
3	Review of proposal with supervisor	Jan 2021- Feb 2021
4	Designing of research tools	March 2021
5	Production final research proposal	April 2021
6	Actual field research and data collection	May 2022-June 2022
7	Data processing	Early July 2022
8	Data interpretation and discussion	Late July 2022
9	Report writing and submission	Early August

Appendix D: Budget

S/NO	ITEM	QUANTITY	Rate	AMOUNT
A	**Secretarial aspect**			
01	Typing	Ls	500sh	500,000sh
02	Pen	3 dozen	20,000sh	60,000sh
03	Reams of paper	20 reams	20,000sh	400,000sh
04	Recording gadget	2pcs	100,000sh	200,000sh
05	Printing	Ls	300sh	600,000sh
06	Staple wires	20pkts	1000sh	20,000sh
07	Flash disk	2pcs of 16 GB	30,000sh	60,000sh
08	Box files	3pcs	10,000sh	30,000sh
09	Hard cover			100,000sh
	Sub-total			**1,520,000sh**
B	**Transport**			
10	Mukono to Universal Secondary Education			1,500,000sh
C	**Others**			
	Research assistants during data collection	2people	100,000sh	200,000sh
	Miscellaneous			300,000sh
	Sub-total			**2,000,000sh**
	Grand total			**3,520,000sh**

Appendix E: Data Collection Letter

MAKERERE UNIVERSITY

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COLLEGE OF EDUCATION AND EXTERNAL STUDIES
SCHOOL OF EDUCATION
DEAN'S OFFICE

5th May, 2021

TO WHOM IT MAY CONCERN

RE: WATAKA JACQUELINE (2018/HD04/961U)

Ms. Wataka Jacqueline is a M.Ed student in the School of Education doing Master of Education in Science Education. She is proceeding to collect data for her dissertation titled: "***Parental Involvement and Girls' Attitude towards Chemistry at Ordinary Level: A case of Kampala High School".***

Any assistance rendered to her will be highly appreciated.

Yours sincerely,

Assoc. Prof. Betty Ezati
DEAN

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05 MAY 2021
DEAN
SCHOOL OF EDUCATION