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The effects of the knowledge of educational psychology on the academic performance of students in mathematics

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Abstract

This study is an investigation into the effect of educational psychology in teaching and learning in some selected Senior High Schools in the Fomena District of Ashanti region of Ghana. The population of the study comprises the students in Mathematics in the district. Sample selection was by simple random sampling technique using lottery approach for the selection of three schools for which questionnaires were administered. In all eighty (80) teachers were sampled and used. The design used for this research was a survey. The instrument used for data collection included literature review and questionnaire. The researcher's investigation revealed that even though most teachers at the senior high level have sufficient knowledge in educational psychology, the schools are not doing enough to help teachers implement the knowledge. Some recommendations were made in the chapter five to enhance effective teaching and learning situation. The following recommendations were made:

More professionals and qualified teachers should be employed to teach at the second cycle institution. Again, stakeholders should help schools to provide material resources for teachers to use in their teaching and learning process. Further, much time should be allocated to subjects that need a lot of activities to ensure students involvement and participation during teaching and learning. Finally, there should be strict discipline measures to control and regulate students' behaviors.

Keywords: Educational Psychology, Academic Performance, Knowledge

1.0 Introduction

1.1 Background of the Study

Psychology is the study of mental processes and behaviors and the relationship between them. Mental processes include skills like learning, reasoning, emotion and motivation. To study psychology is to learn how humans and other organisms think, understand, learn, perceive, feel, act and interact with others. Because psychology encompasses human and social issues as well as biological and physiological ones, it is categorized as both a natural and social science. As natural, psychology is concern with laws of nature. As a social science, psychology involve the study of the laws of thought, feelings and behaviors of humans and other organisms (Seifert, 2009)

According to Parankimalil (2012) and cited in Sam-Tagoe (2007), the word education has been derived from the Latin term "Educatum" which means the act of teaching or training. He further defined education as the systematic process through which a child or an adult acquire knowledge, experience, skills and sound attitude.

Over the years, educational psychology has made tremendous effect on education towards knowledge acquisition. Educational psychology according to Tuckman and Monettic (2011) is the science of human behavior applied to the teaching and learning process. Its purpose is to produce practical knowledge about educational setting and behavior. It helps teachers to produce practical knowledge about educational setting and behavior. The knowledge of educational psychology helps the teacher in several ways. These include understanding stages of development, knowing the learner, understanding the nature of classroom problem. Furthermore, it helps in developing necessary skills and interest in teaching, understand effective method of teaching, understand the relevance of hereditary and environment on the child among other, (Parankimalil, 2012 as cited in Sam-Tagoe).

According to Dennis (2007), educational psychology actually focuses on transforming the mental, physical, social and emotional behavior of teachers and students, the factors which influence the quantity and quality of learning. Ideally it offers to replace "common sense" or try and error notions of learning and teaching with a variety of hypothesis regarding learners and learning environment derive from systematic studies of individual in those environment.

The application of psychology in education therefore gives a means of praising individual students' similarities and differences and should enable the creation of more efficient learning environment for them. It provides a means of evaluating the strengths and weakness as learners and teachers and is a useful background for anyone concerned with the young.

One reality of teaching is that many events occur simultaneously and in rapid fire succession. Events happen quickly and it is difficult to predict what effect any one by the teacher will have on any particular students. Often teachers must make quick decisions that have uncertain outcomes. The complexities of classroom do not allow effective teachers to follow a "one size fit all" approach to teaching. The teacher must master a variety of perspective and strategies and be flexible in their application. (Sam-Tago 2007).

The relationship between teaching and learning, what and how teachers teach and how and what learners learn has long been a subject of controversy. In order to ensure effective teaching and learning, the teacher should have a good command of the subject matter and solid core of the teaching skills. This is due to the fact students have different level of intellectual abilities, different personal profiles, different interest, varying motivation to learn and different family, economic, religion and cultural background.

Educational psychology which covers the areas of child and adolescent development, social psychology, psychological testing and educational counseling when studied by the teacher will equip him with the necessary knowledge, skills, attitudes and aptitudes in executing his delivery of lesson to improve the academic performance of students.

Many experts in educational endeavor especially teachers do not pay much attention to the use of psychological knowledge of the classroom setting, therefore making teaching and learning challenging. Hence, if educational psychology is properly implemented and utilized in teaching and learning environment, students will learn with ease. (Educational psychology, Microsoft student Encarta)

1.2 Statement of the Problem

In recent times, student's performance in West African Senior Secondary Certificate Examination has now generated a lot of concern for Government and other stakeholders. So many factors may contribute to this. Teachers' methods use in the classroom setting shows that the knowledge in educational psychology is not applied. The study seeks to consider the impact of educational psychology in teaching and learning.

This was realized when the researchers studied the trend of higher poor performance in the West African Senior High Certificate Examination Result. This is as a result of failure of teachers' application of the knowledge gained in educational psychology in the school. The study therefore

seeks to address this problem by encouraging the application of such knowledge in the teaching and learning environment.

1.3 Research Questions

The study seeks to address the following questions;

- How does the use of knowledge in educational psychology affect student's academic performance?
- What are the difficulties faced by teachers in the implementation of the knowledge gained in educational psychology?

1.4 Significance of the Study

Educational psychology actually focuses on transforming the mental, physical, social and emotional behavior of teachers and students, the factors which influence the quantity and quality of learning. Ideally it offers to replace "common sense" or try and error notions of learning and teaching with a variety of hypothesis regarding learners and learning environment derive from systematic studies of individual in those environment. The application of psychology in education therefore gives us a means of placing individual student's similarities and differences and should enable us to create more efficient learning environment for them.

Based on the aforementioned aims of educational psychology, the study will be useful to teachers by seeing the need to apply psychological knowledge to improve students' performance. This is because topic such as education of special child, child development, individual differences, classroom management, assessment and many others which are taught under psychology abreast the teacher with how to design an instruction to meet children's learning abilities

It will also help supervisors and other monitoring teams of the educational sector to set a guide or criteria for monitoring teachers in their application of the knowledge in educational psychology in the classroom.

Finally, it will assist policy makers to prioritized educational psychology in curriculum development and policy making

2.0 Review of Related Literature

According to Amadahe (2002), literature review is all the written document related scholarly textbooks, dissertation involving scholarly issue of interest. This chapter presents the literature review. The section has been considered under the following sub-headings;

- a. The concept of educational psychology
- b. Effective teaching
- c. Factors affecting learning.

2.1 The concept of educational psychology

Educational psychology according to Elliot, Kratochwill, Cook and Travers (2000) is the application of psychology and methods to the study of development, learning, motivation instruction, assessment and related issues that influence the interaction of teaching and learning

Allen and Dale (1968) added that educational psychology is the study of human behavior in educational settings. Clifford (1984) argues that educational psychology is applying the method of psychology to studying the process of education. Slavin (1986) is of the view that it is the study of learners, learning and teaching. , he explains that it the

accumulated knowledge, wisdom, and seat-of-the pants theory that every teacher should know to intelligently solve the daily problems of teaching. It provides teachers with the principles to use in making a good decision.

Telford (1968) added that educational psychology is an area of applied psychology that deals with the application of psychological principles to educative process. It is primarily concerned with the scientific investigation of the psychological aspects of education.

Educational psychology is that field of psychology in which the findings of psychology are applied to the field of education. Further, it is the scientific study of human behavior in education setting. (jojnparankimail.wordpress.com/2012). According to Dennis (2007), educational psychology is a branch of psychology that focuses on transforming the mental, physical, social and emotional behavior of teachers and students, the factors which influence the quantity and quality of learning. Tuckman and Monette (2011) were of the view that educational psychology is the science of human behavior applied to the teaching and learning process. Its purpose is to produce practical knowledge about educational setting and behavior.

2.2 Nature of educational psychology

Kelly (1941) listed the nature of educational psychology as follows:

- To give a knowledge of the nature of the child
- To give understanding of the nature, aims and purposes of education
- To give understanding of the scientific methods and procedures which have been used in arriving the facts and principles of educational psychology
- To present the principles and techniques of learning and teaching
- To give training in methods of measuring abilities and achievement in school subjects.
- To give a knowledge of the growth and development of children
- To assist in the better adjustment of children and to help them to prevent maladjustment
- To study the educational significance and control of emotions and
- To give an understanding of the principles and techniques of correct training.

2.3 Scope of educational psychology

According to Mangal (1993) educational psychology covers five (5) main areas which are:

2.3.1 The Learner

Educational psychology has its subject matter around of the learner. He added that it acquaints one with the need of knowing the learner and deals with the technique of knowing him well. The following topics include in it; the innate abilities and capacities of the individual differences and their measurements, the overt, covert conscious as well as unconscious behavior of the learner, the characteristics of his growth and each stage beginning from childhood to adulthood.

2.3.2 Learning Experiences

Educational psychology helps in deciding what learning experiences are desirable at what stage of the learner, so

that these experiences can be acquired with a greater ease and satisfaction.

2.3.3 Learning Process

He explains that, after knowing the learner and deciding what learning experiences are to be provided, the emergency problem is to help learners in acquiring these learning experiences with ease and confidence. Hence it deals with the nature of learning and how it takes place and the topics such as laws, principles and theories of learning; remembering and forgetting, perceiving, concept formation, thinking, reasoning process, problem solving, transfer of training, ways and means of effective learning.

2.3.4 Learning Situation

It also deals with the environment factors and learning situation which come midway between the learning and the teacher, Topic like classroom climate and group dynamics techniques and aids which facilitate learning, evaluation techniques, and practices, guidance and counseling which help in the smooth functioning of the teaching learning process.

2.3.5 The Teacher

Educational psychology emphasizes the need of knowing the self for a teacher to play his role properly in the process of education. It throws light on the essential personality traits, interests, aptitude, the characteristics of effective teaching, etc., so as to inspire, help teacher handle the stress, conflict and anxiety by giving insight in their own personality.

2.3.6 Effective Teaching

Effective teaching according to Slavin (1986) has to do with mastering of the teaching skills to enhance instruction. He explained further that the line between what the teachers wants students to learn and students' actual learning is called instruction or pedagogy. He added that effective teaching is not a simple matter of one person with more knowledge transmitting that to another. Effective teaching demand strategies; Example, to teach a lesson of long division of a diverse class of fourth-grades, teachers must accomplish many things. First, he said they must make sure the class is in order and that students know what behavior is expected of them. Again they must find out whether students have the multiplication and subtraction skills. They must present lessons on long division in a way that makes sense to students, using teaching strategies that help students remember what they have been taught. He said the lesson should also take into account the intellectual and social characteristics of students in the fourth-grade and the social, intellectual, and cultural characteristics of their particular students. They must make sure that students are interested in the lesson and are motivated to learn long division. Moreover, they may also ask questions or use quizzes or other assessment to see if students are learning what is being taught and they must respond appropriately if these assessments show that students are having problems. Teachers then should review these skills from time to time to ensure their effectiveness. He then concluded that the task of motivating students, managing the classroom, assessing the pre-knowledge, communicating ideas effectively, taking into account the characteristics of the learners, assessing learning outcomes and reviewing

information must be attended at all levels of education in or out of school and the ability to apply and accomplish these task as a teacher makes effective teaching.

To add to the above assertion Shulman (1992) identifies four types of knowledge that are crucial for teacher growth and development: (1) practical knowledge, which comes from student field of experiences, student teaching, and regular teaching; (2) case knowledge, which comes from reading about what both successful and unsuccessful teachers have done; (3) theoretical knowledge, which comes from reading about important ideas, conceptual systems, and paradigms for thinking about teaching; and (4) empirical knowledge, which comes from reading what the research says about a particular subject and how to teach it.

2.4 Factors Affecting Learning

Learning is described as the process by which skills, attitudes, knowledge and concepts acquired are understood, applied and extended. All human beings, engage in the process of learning, either consciously, sub-consciously or subliminally whether grownups or children. It is important that while we learn some ideas and concepts through instruction or through instruction or teaching, we also learn through our feelings and experiences. Learning has been considered partly as a cognitive process, this is because it involves the functions of attention, perception, and reasoning, analysis, drawing of conclusions, making interpretations and giving meaning to the observed phenomena.

One factor that affects learning is age and maturation. Manno (2012) stated that learning is dependent on age and maturation. Maturation is growth that proceeds regularly within a wide range of environmental conditions and takes place regularly in an individual without special condition of stimulation such as training and practice. Learning will be ineffective if the child has not attained the required level of maturity. There are individual differences in the capacity to learn at the same age level. Specific skills are learnt by children easily who mature earlier than others.

Another factor which affects learning is attention. Attention is the characteristics of all conscious life and mental activity. You can succeed in achieving your goals only when your attention is directed towards learning. Danville (1938) stated some characteristics of attention, these include the following. Attention is focusing on one subject. Attention is selective. Attention is constantly shifting from focus to margin. Attention cannot be divided between two mental tasks and finally attention is the state of preparedness where muscles and sense organs are ready for communication. She further explained three types of attention. These are as follows;

Voluntary attention is a type of attention where a person actively searches out information that has personal relevance.

Selective attention is another type that involves a person to selectively focus his or attention on relevant information.

Involuntary attention on the other hand is where a person is exposed to something surprising, novel, threatening or unexpected.

Perception is the third factor affecting learning. Perception, according to Crow et al (1997) is the process through which a person is exposed to information, attends to the information and comprehends the information. They further

explained three components under perception, namely exposure, attention and comprehension. Exposure is an act through which a person receives information through his or her senses. Attention is an act by which a person allocates processing capacity to a stimulus and lastly, comprehension as an act by which a person interprets the information to obtain meaning from it. Perception is therefore expressed mathematically as, Perception = sensation + meaning. For example, eye react to light and gives knowledge of brightness, nose react to smell and give the knowledge of pleasant or unpleasant smell, ear to the sound of barking and gives knowledge of presence of a dog.

Another factor affecting learning is motivation. Motivation is defined as an inspiration that propels someone into an action. It is an internal state or condition that activates and gives direction to our thoughts, feelings and actions.

Maslow (1970) believed that motivation leads to growth and development, and that need satisfaction is the most important sole factor underlying motivation. Maslow further explained that man is perpetually in need and the resources to satisfy those needs are limited. In view of this, man places his wants on scale of preference, that he selects the most pressing need. After this need has been satisfied, it becomes less important, paving way for the next on the rank. The needs of man may either be primary need if the need arises from physiological wants, example water, hunger and thirst or secondary need if the needs are the desire for autonomy, affection, or the need for security and safety, example finding a place to hide during a heavy downpour.

In the opinion of Manno (2012), there are two types of motivation, namely intrinsic and extrinsic motivation. Intrinsic motivation is an internal force or motive within the individual which propels him or her into emitting certain behavior. Intrinsic motivation arises when the resolution of the tension is to be found in mastering the learning task itself. Deci and Ryan (1985) further outlined intrinsic motivation as an innate or genetically predetermined disposition to behave in a particular way when he or she faces a particular situation. This type of motivation can make an individual to have the feelings of self- confidence and competence. This type of learning does not require prior learning.

Extrinsic motivation is the external or environmental factor, which sets the individual's behavior into motion. The incentive/reinforce drives an individual's behavior towards a goal.

3.0 Methodology

The study conducted was basically a descriptive survey since it involves the collection and analysis of data, and finding out the answers concerning the current status of the subject. Also, it is a study of variables in their natural setting or under usual circumstances. This comprises observation of facts, collection and classification of data, interpretation of data, formulation of theories, application of facts and predictions. Since human behavior is difficult and cannot be predicted, it makes the results of the research at times not applicable to the population.

3.1 Population and Sample

The area selected for the study was Fomena District in the Ashanti region. The target population for this study includes all the Senior High School teachers in the District.

Statistics from the Office of the Ghana Education Service, Fomena shows that the district has four Senior High Schools with a total number of one hundred and forty-five (145) teachers of which Ninety-eight (98) are males and forty-seven (47) are females.

In an attempt to obtain a representative sample for the study, a total of eighty (80) teachers were sampled for the study. This size was taken based on the table developed by Krejcie and Morgan (1970). Schools within the District were written on a sheet of paper and a simple random sampling technique using lottery approach was used to select three of the schools for which questionnaires were administered.

3.2 Research Instrument

In order to conduct an effective and comprehensive investigation to identified relevance of educational psychology in teaching in the Fomena District, the main instrument used was the questionnaire. It consisted of closed ended and open ended items. The questionnaire had twenty-five (25) items. It was also in two sections. Section A dealt with the personal data of the respondents and Section B dealt with issues related to the relevance educational psychology in teaching.

3.3 Data Collection Procedure

The researchers in consultation with the headmasters and headmistresses of the various schools scheduled a date for the administration of the questionnaire on a proposed date. The researchers visited the various schools to administer the questionnaire. The respondents were given one week within which to respond to the questions after which the instruments were collected for analysis.

3.4 Data Analysis

In relation to the research study, the collected data was analyzed using descriptive tools which include table of frequencies and percentages together with relevant narrative expression. The highest responses of particular data were considered as the general opinion of the respondents and situation on the ground.

4.0 Results and Discussion

The effect of the use of knowledge in educational psychology on students' academic performance.

Research question one sought to find out the effect of the application of the knowledge in educational psychology on students' academic performance. Table 3 presents the results on this information.

Table 1: Effect of the application of the knowledge in Educational Psychology on students' academic performance

Items	Frequency		Percentages (%)	
	Yes	No Total	Yes	No Total
Use of TLMs	80	0 80	100	0 100
Varying Methods of Teaching	80	0 80	100	0 100
Knowledge of Individual Differences	80	0 80	100	0 100
Provision of feedbacks	78	2 80	97.5	2.5 100
Use of Reinforcement Techniques	80	0 80	100	0 100
Knowledge of the use of Guidance and Counseling	80	0 80	100	0 100
Proper use Punishment	77	3 80	96.2	3.8 100

Source: Field work (February 2016)

As indicated in Table 1, eighty (80) respondents representing 100% of the populace accepted that the use of TLMs helps improve students' academic performance. This informed the researchers that when teachers use TLMs during lessons it enhances students understanding; hence improving their academic performance.

The result also shows that, all the respondents representing 100% pointed out that varying of teaching method, knowledge of individual difference, use of reinforcement techniques, and guidance and counseling improve students' academic performance. Hence, all the above-mentioned factors help teachers to teach better and their students also learn better.

Again it can be deduced from the results that seventy-eight (78) respondents representing 97.5% confirm that provision of feedback enhances students' academic performance whilst two (2) of the respondents constituting 2.5% denied

the fact that provision of feedback have positive effect on students' academic performance. This means that when teachers provide feedback to students, they help improve students' performance. Finally, seventy-seven (77) respondents who constitute 96.2% opine that the proper use punishment helps in teaching and learning whilst three (3) representing 3.8% denied that fact. In effect it can be concluded that the knowledge in educational psychology really enhances the teaching and learning process.

The difficulties faced by teachers in the implementation of the knowledge gained in educational psychology

Research question two sought to find out the effect of the application of the knowledge in educational psychology on students' academic performance. Table 4 presents the results on this information.

Table 2: Difficulties faced by teachers in the implementation of the knowledge gained in Educational Psychology

Items	Frequency			Percentage%		
	Yes	No	Total	Yes	No	Total
Availability of TLMs	25	65	80	18.75	81.25	100
Time allotted for lessons	50	30	80	62.5	37.5	100
Students misbehavior	70	10	80	87.5	12.5	100

Source: Field work (February 2015)

The results from Table 2 indicate that sixty-five (65) of the respondents representing 81.25% claimed that there are no

teaching and learning materials in the schools whiles twenty-five (25) of the respondents constituting 18.75%

said that there are enough teaching and learning materials in the schools. From the result, it means that there is not enough teaching and learning materials in the schools and that pose challenge to effective teaching. Again, the results shows that fifty (50) of the respondent representing 62.5% of the populace were of the view that time allotted for lesson pose difficulties in covering the syllabus whiles thirty (30) of the respondents constituting 37.5% stated that time allotted for lessons does not pose difficulties in covering the syllabus. It can be concluded that time allotted for lesson pose difficulties to teachers in the effective implementation of the knowledge gained in

educational psychology. Issue like motivation, individual difference, guidance and counseling and many others cannot be effectively looked at. Moreover, it is realized that out of the total populace of eighty (80), seventy (70) of the respondents representing 87.5% claimed that misbehavior in class affect lessons adversely and ten (10) respondents representing 12.5% of the populace assumed the position that misbehavior of students does not affect lesson delivery. In considering the information gathered, it seen that teachers encounter challenges during lesson delivery due to students' misconduct.

Table 3: Relationship between Effect of Psychological knowledge of teachers and how it is applied

		Effect of Psychological knowledge on Students academic performance					
		Yes	No	Undecided	Total	Chi-sqr	Chi-sqr
<i>Difficulties faced by students in implementing Knowledge in psychology</i>	Availability of TLMs	17	8	7	32	Chi-sqr	19.061
	Time allotted for lesson	10	3	0	13	df	6
	Students misbehavior	13	0	0	13	Sig.	.004 ^{a,b}
	Attitude towards the subject	20	2	0	22	Chi-sqr	19.061
TOTAL		60	13	7	80		

Source: field survey-Results are based on nonempty rows and columns in each innermost sub-table. *. The Chi-square statistic is significant at the 0.05 level

Table 3 gives a 5 by 6 contingency Pearson chi-square independence test between the Effect of Psychological knowledge of teachers and its application. Independent variable on students' response are based on whether there is availability of TLMs, time allotted for lesson was sufficient, students misbehavior and their attitude towards the subject as against teachers response is categorized as the effect is there (yes), no effect (no) or whether they are undecided about the effect.

The study sought to test the hypothesis that
 H_0 : There does not exist a relationship between teachers' Psychological knowledge and their application
 Against

H_1 : There exist a relationship between students' Psychological knowledge and their application

At a significance level of $\alpha = 0.05$, a decision precision level of

$$100(1 - \alpha)\% \cong 95\%$$

A Pearson independent chi square is computed using an SPSS output estimator as

$$\chi^2 = \sum_{i=1}^r \sum_{j=1}^c \frac{(o_{ij} - e_{ij})^2}{e_{ij}} = 19.061$$

That is $\chi^2 = 19.061$ with the number of degrees of freedom given by

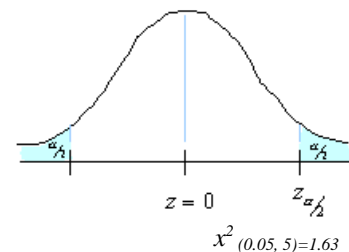
$$(r - 1)(c - 1) = (5 - 1)(6 - 1) = 3 \times 2 = 6 \text{ d. f.}$$

The critical region for the test at $\alpha\% = 5\%$ significance level is the probability of rejecting the H_0 . Hence the computed chi-square at 6 d.f is given as

$$\chi^2_{[(r-1)(c-1)]} = \chi^2_{(0.05,5)} = 19.061$$

The study realized a significance chi-square test at $\alpha = (0.01), (0.05) \text{ and } (0.1)$ respectively since SPSS calculated $P - \text{value of } 0.004 < (\alpha = (0.01), (0.05) \text{ and } (0.1))$.

We fail to reject H_0 , hence it is statistically significant. We have insufficient evidence to reject H_0 .



It is concluded here however that, there is no significant relationship between teachers' Psychological Knowledge and their application. Again, the fact that a student see mathematics as difficult to understand cognitively or not doesn't depend significantly on their teachers' knowledge of Psychology. The three dimensional Multiple Bar graph below is a pictorial representation of the relationship between psychological knowledge and their difficulties in the subject based on gender disparities. The modal response however is directed towards 'yes' with fewer indecision.

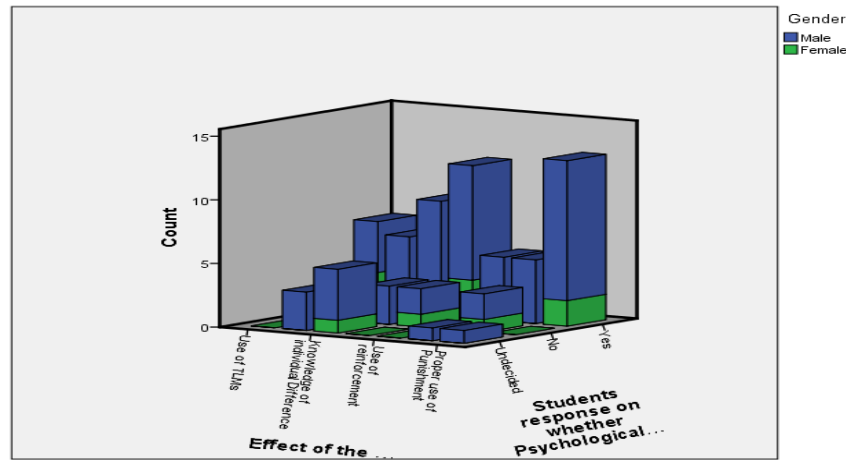


Fig 1: A three dimensional Multiple Bar graph below is a pictorial representation of the relationship between psychological knowledge and their difficulties in the subject

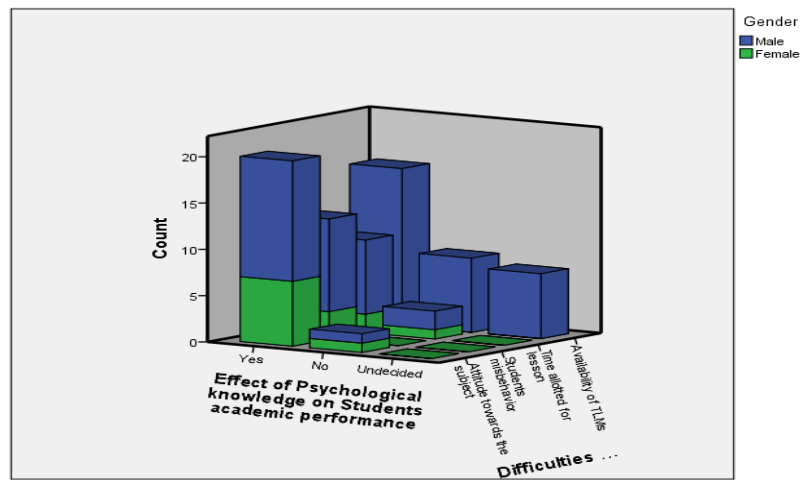


Fig 2: A three dimensional Multiple Bar graph below is a pictorial representation of the relationship between the effect of psychological knowledge and their difficulties in the subject

Table 4: Effect of psychological knowledge on students and their academic performance

		Teachers response on whether Psychological knowledge affect the AP					
		Yes	No	Undecided	Total	Chi-square	Chi-square
Effect of the application of the knowledge in educational psychology on students' academic performance	Use of TLMs	7	2	0	9	Chi-squar	18.102
	Varying Methods of Teaching	6	2	3	11	df	6
	Knowledge of individual Difference	9	3	5	17	Sig.	.113 ^{a,b}
	Provision of feedback	12	3	0	15		
	Use of reinforcement	5	0	0	5		
	Knowledge of the use of Guidance and Counselling	5	3	1	9		
	Proper use of Punishment	13	0	1	14		
TOTALS		57	13	10	80		

Source: field survey 2016-Results are based on nonempty rows and columns in each innermost sub-table. *. The Chi-square statistic is not significant at the 0.05 level

Table 4 gives a 7 by 4 contingency Pearson chi-square independence test between the effect of Psychological knowledge of teachers on their students and their response on whether Psychological knowledge affect the Academic Performance. Independent variable on the teachers' response are based on whether there is availability of TLMs, varying methods of teaching, knowledge of individual differences, provision of feed-back and uses of reinforcement, uses of guidance and counselling and proper usage of punishment against their response categorized as whether there is effect (yes), no effect (no) or whether they are undecided about the effect.

The study sought to test the hypothesis that
 H_0 : Knowledge in Educational Psychology does not affect students' academic performance (AP)
 Against
 H_1 : Knowledge in Educational Psychology affects students' academic performance (AP)
 At a significance level of $\alpha = 0.05$, a decision precision level of

$$100(1 - \alpha)\% \cong 95\%$$

A Pearson independent chi square is computed using an SPSS output estimator as

$$\chi^2 = \sum_{i=1}^r \sum_{j=1}^c \frac{(o_{ij} - e_{ij})^2}{e_{ij}} = 18.1$$

That is $\chi^2 = 18.1$ with the number of degrees of freedom given by

$$(r - 1)(c - 1) = (7 - 1)(3 - 1) = 6 \times 1 = 6 \text{ d.f.}$$

The critical region for the test at $\alpha\% = 5\%$ significance level is the probability of rejecting the H_0 . Hence the computed chi-square at 6 d.f is given as

$$\chi^2_{[(r-1)(c-1)]} = \chi^2_{(0.05,5)} = 18.1$$

The study realized a significance chi-square test at $\alpha = (0.01), (0.05) \text{ and } (0.1)$ respectively since SPSS calculated $P - \text{value of } 0.113 > (\alpha = (0.01), (0.05) \text{ and } (0.1))$.

We reject H_0 , hence it is statistically significant. We have insufficient evidence to reject H_0 at 1%, 5% and 10% significant level. That is, H_0 is statistically not significant. Hence, knowledge in psychology have significant effect on students' academic performance (AP) based on availability of TLMs, varying methods of teaching, knowledge of individual differences, provision of feed-back and uses of reinforcement, uses of guidance and counselling and proper usage of punishment

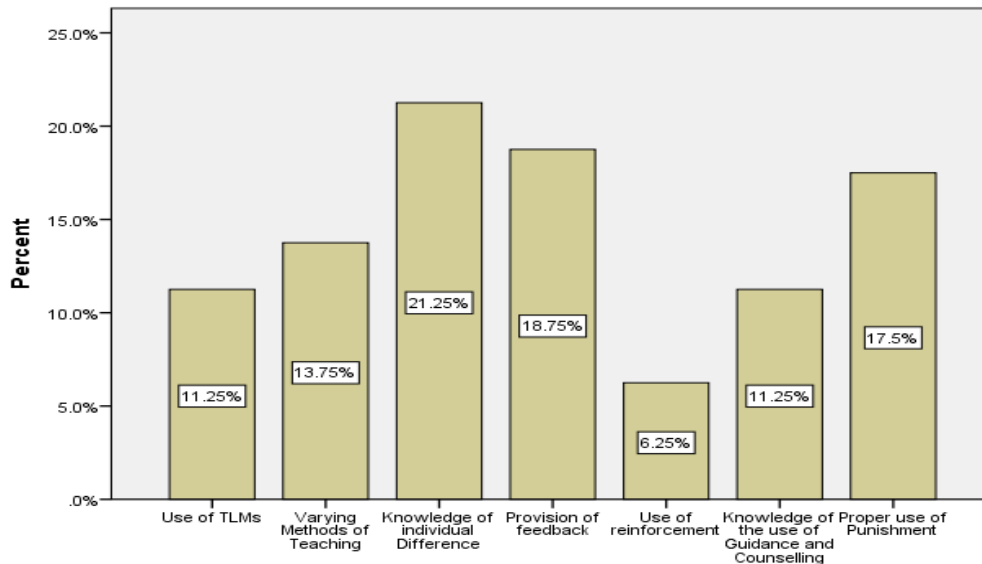


Fig 3: Effect of the application of the knowledge in educational psychology on students' academic performance

Table 5 below further investigates the relationship between the response of teachers on whether their knowledge on

Educational Psychology (guidance and counselling) affect their lesson delivery.

Table 5: Effect of psychology on students versus students' knowledge in Guidance and counselling

		Knowledge of the use of Guidance and Counseling				
		Yes	No	Undecided	Chi-square	Chi-square
Effect of the application of the knowledge in educational psychology on students' academic performance	Use of TLMs	5	4	0		
	Varying Methods of Teaching	11	0	0	Chi-sqr	21.995
	Knowledge of individual Difference	14	0	3	df	12
	Provision of feedback	10	3	2	Sig.	.038 ^{a,b,c}
	Use of reinforcement	3	1	1		
	Knowledge of the use of Guidance and Counseling	9	0	0		
	Proper use of Punishment	11	3	0		
TOTALS		63	11	6		

Source: field survey 2016-Results are based on nonempty rows and columns in each innermost subtable. *. The Chi-square statistic is significant at the 0.05 level

Table 5 shows the Effect of the application of the knowledge in educational psychology on students' academic performance versus their response on Knowledge of the use of Guidance and Counseling there was a significant dependence of knowledge in Educational psychology and response on whether their guidance and counselling facilitate their learning or not. Our Pearson Chi-square value of 0.038 revealed significant dependence on the two comparison in table 5.

63 students constituting 53% respondent positive to the assertion. 11 students constituting 9.17% responded no whilst 5.5% were undecided about the matter.

5.0 Summary of Major Findings

The study is to investigate into the effects of the knowledge educational psychology to the classroom teacher to the enhancement of students' academic performance. The researcher made the findings below;

From the literature review, educational psychology provide knowledge in all aspect of teaching and learning situations ranging from the leaner, learning experience, learning process, learning situation and the teacher.

It was also found that most of the teachers were professional and have had working experience more than five years. Again, most of them had knowledge in educational psychology and have been applying the knowledge gained on the field.

Furthermore, few or no teaching and learning materials are used during lessons due to limited or no materials available. It was again observed that limited time and periods were allotted for lessons.

Finally, the researchers observed that students who misbehave during lessons are punished to deter students from repeating such behavior.

5.1 Conclusions

The researcher was able to draw conclusions out of the findings in relation to the research questions and objectives. The researchers were able to ascertain that teachers have fair knowledge in educational psychology based on the responses provided by both teachers and students.

The analysis of the responses gathered clearly demonstrates a correlation between the teacher application of the knowledge of educational psychology and student's academic performance. This culminated into the high percentage of responses given by student on the effect the application has on their academic performance.

Again, the analysis call to bear that teachers have been encountering challenges such as students misbehavior, lack of teaching and learning materials and limited time allocated to lessons.

Finally from the findings, it is very necessary for the classroom teacher to acquire knowledge in educational psychology in order for him or her to be able to make positive impact on students. As explained by Tuckman and Monettic (2011) that educational psychology helps teachers to produce practical knowledge about educational setting and behavior, understanding stages of development, knowing the learner, understanding the nature of classroom problem, developing necessary skills and interest in teaching.

5.2 Recommendations

From the basis of the findings, these recommendations are made;

First, since teaching is a continuous process and requires lot activities to ensure effective impartation of knowledge, there should be regular in-service training to teachers to refresh their knowledge in the area of educational psychology.

To add, more professionals and qualified teachers should be employed to teach at the second cycle institution.

Again, stakeholders should help schools to provide material resources for teachers to use in their teaching and learning process.

Further, much time should be allocated to subjects that need a lot of activities to ensure students involvement and participation during teaching and learning.

Finally, there should be strict discipline measures to control and regulate students' behaviors.

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