

# Using Cognitive Apprenticeship to Enhance the Study of Budgeting and Budgetary Control: An Action Research<sup>1</sup>

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## ABSTRACT

This research project sought to assist business three (3) students of Faith Senior High School to enhance their performance in budgeting and budgetary control using cognitive apprenticeship model of instruction. Many have argued that, our educational curriculum should be modelled to equip students with the requisite employable and entrepreneurial skills. Some scholars argue that the best form of education that give hands on practical training is the apprenticeship model of education and think it can be incorporated into our educational system. This can be done by replicating/bringing the process in the traditional apprenticeship that is the modeling, scaffolding, coaching, articulation and exploration into the classroom. The research was conducted in a way that saw the replication of all the elements of the apprenticeship model in the classroom for the impact to be evaluated. All the students in the class took part in the study. The researcher used exercises, observations, interview and administered questionnaire to gather data and used tables and figures/charts to analyze the data. The post-intervention results showed that the performance of the students improved consistently over the study period. The results mean that students' performance can be enhanced if the cognitive apprenticeship model of instruction is used.

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## INTRODUCTION

Recently, there have been a lot of calls from various stakeholders' especially to tertiary institution to structure their programs to train graduates who will think outside the box to employ themselves and their colleagues. Some of the proponents claim that our contemporary graduates from many tertiary institutions are theoretically oriented. These graduates seem to lack practical skills needed for effectiveness of organisations and institutions. This development has been largely attributed to the mismatch in the educational system. What is learnt from our schools and colleges does not reflect what the society needs. In order to address the issue, our institutions should churn out job creators (entrepreneurs) and not jobseekers. Buttressing this point, Asamoah (2013) opined that, the content of the courses that are taught in our universities, polytechnics and other institutions of higher learning should be redesigned to provide as much practical training as theoretical. He emphasized that, the focus of our education should be redefined to emphasize the training of creative, innovative and critical thinkers and to de-emphasize preparing people to pass examination. This way we are more likely to produce graduates who will have the ability to search for solutions to societal problems and hence create employment for themselves and for others. This way graduate unemployment will be a thing of the past concludes Asamoah (2013).

Even though there have been several frantic efforts by successive governments to restructure our educational system to be responsive to the developmental challenges the country faces. These interventions to a large extent yielded little or no results. The educational reforms under Colonel Ignatius K. Acheampong which was initiated in 1974 sought to shift the focus of education from the inherited purely academic base education which did not provide school leavers with employable skills to enable them gain employment immediately after school (Adjei-Mensah et al ,2001) but even though the reasons that necessitated the reforms were pressing and the recommendations laudable, implementation was very poor, thus not yielding the needed results(Adjei-Mensah et al 2001).

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The World Education Forum (2000) recommended among other things for urgent attention to be devoted to the development of materials, methodologies and social learning environments that are feasible and sustainable in the local environment and relevant to the African learner. Also, part of the resolutions was for the member states to restructure their educational curriculum to reflect the needs of society and also make vocational, technical and apprenticeship issues national priority. This has led to increased emphasis on training and mentoring entrepreneurs. To tackle our growing graduate unemployment, we essentially must focus on training entrepreneurs and providing them with the necessary support in terms of resources. But in the academia, the responsibility is on the training. *Casil (2013)* indicates that, no business achieves success without written plans and measurable outcomes for work and financial investment. This is what the syllabus of cost accounting seeks to inculcate into students. In this regard, students will gain insight into cost control which is the backbone of management control. This will equip students with skills and the fundamentals to make them successful in any future entrepreneurial ventures they might find themselves.

But it is regrettable that, most principles of cost accounting students even after completing high school rarely understand the concept of budgeting and budgetary control which is one of the cores if not the core of management control. As such, students perform woefully poor in the area during their final examination, which is the only means, thus far, of measuring students abilities. This is evident in the West Africa Examination Council chief examiners report (Council, 2008; 2009).

### **Statement of the Problem**

Upon assuming duty as the principles of cost accounting teaching intern in Business Three (3) of Faith Senior High School, I observed that students were more particular about formats and bookish definitions to the detriment of understanding the concepts and its applications. When finally, the class was supposed to treat budgeting and budgetary control, the students indicated that, they had already treated the topic with their previous cost accounting teacher and for that matter, the topic could be skipped. The researcher then sought to validate students' assertions that the topic was taught, and they really understood it by using a classroom exercise. The results of the study prompted the researcher to conduct the research.

### **Purpose of the Study**

The purpose of the study is to enhance students' understanding of budgeting and budgetary control in form three (3) of Faith Senior High School, using cognitive apprenticeship. To achieve the purpose of the study the following specific objectives were set for the study.

- To identify what motivates students to learn cost accounting.
- To identify whether students' experience influences their liking for a topic or subject.
- To find out whether cognitive apprenticeship can be helpful in enhancing students understanding of budgeting and budgetary control.

### **Research Questions**

Based on the purpose of the study, the study will address the following questions:

- What motivates students to learn cost accounting?
- To what extent does students' experience influence their liking for a subject or topic?
- To what extent can the use of cognitive apprenticeship enhance students understanding of budgeting and budgetary control?

### **Delimitation of The Study**

The geographical delimitation of the study is Faith Senior High School which is within the Kumasi metropolitan Assembly where the researcher had his internship in the 2013/2014 academic year. The researcher confined himself to Faith Senior High School instead of all Senior High Schools within the country.

Again, it included only third year students of 2013/2014 academic year of which only one class was involved. To enhance the understanding of students, the researcher zoomed in on only the cognitive apprenticeship method and not all teaching methods and on just a single topic in cost accounting, that is budgeting and budgetary control and not on all topics. Hence conclusion and generalization may therefore not be applicable to all senior high school students and all topics in cost accounting.

## **LITERATURE REVIEW**

### **Cognition and Learning**

Martin (1998) defines cognition as the mental process by which we get knowledge. Again, Feldman (1996) also see cognition to be the higher mental process of humans including how people know and understand the world, process information, make judgements and decisions, and describe their knowledge and understanding to others. Learning on the other hand as defined by Gagné (1985) as being a change in human disposition or capability that persists over a period and is distinct from and not simply ascribable to the process of growth. The kind of change called learning exhibits itself as a change in behaviour which is evaluated by comparing the behaviour prior and after the individual went through the learning process.

According to Hamm (1989), three concepts are central for there to be learning, these conditions are intention to know, that is, the acquisition of knowledge should be as a result of deliberate effort by the student to learn or acquire the knowledge. The second criterion is that there should be experience and the final condition is there should be mastery or improves skill or an item of propositional knowledge or belief. The first criterion is in sharp contrast to the work of Pavlov and many other behavioural psychologists.

### **Motivation and How it Influences Learning**

Central to the learning process is motivation and what pushes students to learn. Elliot et al. as cited by Owusu-Banahene (2008) defines Motivation as an internal state that arouses us to action, pushes us in particular directions and keeps us engaged in certain activities. To the behaviourist, motivation is extrinsic. The behaviourist consider students as naturally lazy and left to them alone will not give time to their books just for the sake of learning, thus to push them to learn means some amount of external influence (incentives) needs to be exerted on them in the form of good grades or material rewards.

Contrary to this is the cognitivist, they see motivation as intrinsic. This is in line with Plato's famous quote that "knowledge acquired under compulsion obtains no hold on the mind". Thus, external pressures or incentives may force a student to learn but it wouldn't guarantee it's sticking to the mind. To them, internally reinforcers and motives are the key rather than external reinforcers (Sprinthall & Sprinthall, 1990). To buttress this, one cognitive psychologist by name Jerome Bruner holds the convictions that, learning will be more long-lasting when it is sustained by intrinsic motivation than when it is driven by the more transitory push of external reinforcers even though he admits that, "extrinsic motivation may be necessary to get the learner to initiate certain actions or to get the learning process started and off dead centre" (Sprinthall and Sprinthall, 1990). According to Bruner, perhaps the best example of intrinsic motivation is curiosity which he believes we come to this world equipped with curiosity drives. Comparatively, intrinsic motivation is an important phenomenon for education since it is a natural wellspring of learning and achievement. In the classic literature however, extrinsic motivation has been considered as a pale and impoverished form of motivation. Some have even argued that adding an extrinsic incentive to a study or complete a task has been found to decrease intrinsic motivation (Owusu-Banahene, 2008). Sprinthall and Sprinthall (1990) notes that humans are continuously faced with motivational conflicts such as the need for dependency and independency. The resolution of these conflicts is determined by a host of cultural and personality factors.

### **Theories of Learning: An Overview**

Owusu-Banahene (2008) defines theory as a set of concepts/principles laws about a phenomenon that seeks to explain the occurrence of the phenomenon and predict its occurrence in the future. Learning theories can therefore be said to be the set of principles which attempt to illustrate how learning takes place.

There are a lot of theories that seek to explain how best learning occurs, but these can conveniently be categorized under two classical divisions, these are behaviourism and cognitivism (Lefrancois 1975).

Behaviourism is the view that, behaviour should be explained by observable experiences, not by mental processes (Owusu-Banahene, 2008). Early in the twentieth century, many psychologists decided that introspection was not a good basis for the science of the mind; instead they decided to concentrate only on external observable behaviour ( Martin,1998) since in their opinion thoughts, feelings and motives are not appropriate subject matter for a science of behaviour because there cannot be directly observed (Owusu-Banahene, 2008). Some of the theories under this category are the Ivan Pavlov theory of classical conditioning, Thorndike's laws of learning and Edwin Guthrie law of contiguity.

However, Drisscoll as cited in Owusu-Banahene (2008) opined that psychology has become more cognitive in the last part of the twentieth century. This cognitive emphasis has become the basis for numerous approaches to learning. Cognitive theorist view learning as reorganisation of perceptions. This reorganisation allows the learner to perceive new relationships, solve new problems and gain basic understanding of a subject area (Sprinthall & Sprinthall, 1990). This school of psychology are also referred to as gestalt psychologist. According to the gestaltists, if information is dissected into little stimulus-response associations, they will not be consistent with reality. Thus, if you want children to learn nonsense then go ahead and condition them; but if you want them to learn meaningful relationships, then a different approach is needed, a cognitive approach (Sprinthall & Sprinthall, 1990). Bruer (1999) concords that, even though cognitive science is not the sole answer to all educational problems, yet it has to be part of any attempt to improve educational practice and improve learning, asserting that the science of the mind can guide educational practice in much the same way biology guides medical practice. This is suggestive that, even though cognitive psychologist do not wholly deny the essence of operant and classical conditioning of learning, they do not also accept the perspective that regard learning as the unthinking, mechanical and automatic acquisition of association between stimuli and responses as in classical conditioning. (Feldman, 1996).

This makes it clear that, both the behaviourist and the cognitivist theories have some merits and attempting to sweep one under the carpet will result in some gaps in explaining learning. In this light, Albert Bandura one of the leading proponents of the social cognitive learning theory argues that both social and cognitive factors as well as behaviour play roles in learning (Bandura, 1965). Fryling, Johnston, and Hayes (2011) conclude that Bandura and colleagues seemed to question the role of rewards on the behaviour of the observer.

But all the theories mention so far, that is the behaviourist, the cognitivist and the social cognitivist theories puts the learner at the receiving end where the learner either simply respond to environmental stimulus in the learning situation, observe and imitate a "more knowledgeable other" and or through the cognitive process of thinking, memory, manipulation of information. This means the individual either responds to the influence of reinforcements or punishment or respond mentally to external stimulus. None of the theories stated above explore the idea that the individual learner can construct or discovering his or her own learning experience (Owusu-Banahene, 2008).

This leads us to another school of thought which believes that human learning is constructed. These theorists are called the constructivist. Constructivism emphasises that individuals learn best when they actively construct knowledge and understanding. "In general, social constructivist approaches emphasizes the social contexts of learning and that knowledge is mutually built and constructed" (Santrock, 2001, p 318). This theory is grounded on the works of Piaget and Vygotsky. According to Owusu-Banahene (2008), two important notions orbit around the simple idea of constructed knowledge, the first is that learners construct understanding of new ideas using what they already know as basis, that is to suggest that, learners come to the learning situations with relevant previous knowledge which will influence what new or modified knowledge they will construct from the new learning experience. Secondly, that learning is active rather than passive. Learners confront their understanding considering what they encounter in the new learning situation. If what learners encounter is inconsistent with their current understanding, their understanding can change to accommodate new experiences. Learners remain active throughout this process.

Situated cognition is a key assumption in the social constructivist approaches. It refers to the idea that thinking is located (situated) in social and physical contexts and not within an individual's mind. Supposing this is true, then it makes sense to create learning experience that are very close to real situations as possible (Santrock, 2001). Central to this view is the society and its problems and the practical focus to equip learners to tackle societal problems after the learning experience. This is in line with the resolution of the World Education Forum (2000) that seek to redesign curricula and teaching methods to make them relevant to the cultural environment and to the educational, psychological and socioeconomic needs of learners.

The best form of learning that is closely related to the practical world circumstances arguable is the apprenticeship model that was used from time immemorial. In traditional apprenticeship, the expert models a task for the apprentice, watches as the apprentice practices portions of the task, and then turns over more and more responsibility until the apprentice is proficient enough to accomplish the task independently. That is the basic notion of apprenticeship: showing the apprentice how to do a task and helping the apprentice to do it. There are four important aspects of traditional apprenticeship: modelling, scaffolding, fading, and coaching (Collins, Brown & Holum, 1991). In modern times, apprenticeship has largely been replaced by formal schooling, Collins, Brown and Newman as cited in Collins, Brown and Holum (1991) proposed an alternative model of instruction that goes back to apprenticeship but incorporates elements of schooling which they call "cognitive apprenticeship".

### **Cognitive Apprenticeship**

Barbara Rogoff as cited in Santrock (2001) holds the conviction that, an important aspect of education is cognitive apprenticeship. Brown, Collins and Duguid as cited Brill, Kim, and Galloway, (2001)) describes cognitive apprenticeship as trying to enculturate students into authentic practices through activity and social interaction in a way like that evident in craft apprenticeship.

In cognitive apprenticeship model of teaching, the expert stretches and supports the novices to understand the processes experts use to handle complex tasks. The focus of this learning-through-guided-experience is on cognitive and metacognitive skills, rather than on the physical skills and processes of traditional apprenticeships (Collins, Brown & Holum 1991). Applying apprenticeship methods to what are largely cognitive skills requires the externalization of processes that are usually carried out internally. Therefore, the thinking and reflection must be out loud. Observing the processes by which an expert think and practices her skills can teach students to learn on their own more skilfully (Anonymous).

Collins, Brown and Holum (1991) opined that, there are three key differences between cognitive apprenticeship and traditional apprenticeship. The first difference to them is that, the skills learnt in traditional apprenticeship are usually concrete and observable this contrast with cognitive apprenticeship which must consciously bring the thinking process experts use to solve problems to the surface, to make it visible. The teacher's thinking must be made visible to the students and the student's thinking must be made visible to the teacher in the form of articulation. To them, this is the most important difference between traditional apprenticeship and cognitive apprenticeship (Collins, Brown & Holum, 1991).

Secondly, in traditional apprenticeship, the tasks come up just as they arise in the world: Learning is completely situated in the workplace. When tasks arise in the context of designing and creating tangible products, apprentices naturally understand the reasons for undertaking the process of apprenticeship. They are motivated to work and to learn the subcomponents of the task, because they realize the value of the finished product. They retain what they must do to complete the task, because they have seen the expert's model of the finished product, and so the subcomponents of the task make sense. But in school, teachers are working with a curriculum centred around cognitive and abstract skills that is, in large part, divorced from what students and most adults do in their lives. In cognitive apprenticeship, then, the challenge is to situate the abstract tasks of the school curriculum in contexts that make sense to students.

Third, in traditional apprenticeship, the apprentice may not have known anything about the skill to be learnt and the transfer of skill is unlikely. In cognitive apprenticeship however, there is the likelihood that transfer of knowledge may be necessary. Presenting a range of tasks varying from systematic to diverse that encourage student to reflect and transfer and apply relevant knowledge to new tasks is the challenge. The

goal is to help students generalize the skill, to learn when the skill is or is not applicable, and to transfer the skill independently when faced with novel situations.

Collins, Brown and Holum (1991) advocates six Teaching methods to ensure the efficient utilization of the cognitive apprenticeship model, they further categorized these teaching methods into three (3), these are modelling, coaching and scaffolding. These are the core of cognitive apprenticeship, designed to help students acquire an integrated set of skills through processes of observation and guided practice. The remaining are articulation, reflection and exploration.

Modelling is perhaps the core of all the elements of the cognitive apprenticeship model of teaching. Modelling in cognitive apprenticeship essentially means showing how a process unfolds and giving reasons why it happens that way (Brill, Kim, & Galloway, 2001).

Modelling involves an expert's performing a task so that the students can observe and build a conceptual model of the processes that are required to accomplish it. In cognitive domains, this requires the externalization of usually internal processes and activities-specifically, the heuristics and control processes by which experts apply their basic conceptual and procedural knowledge. For example, a teacher might model the reading process by reading aloud in one voice, while verbalizing her thought processes in another voice (Collins and Smith, cited in Collins, Brown and Holum, 1991). According to Brill, Kim, and Galloway (2001)), There are two kinds of modelling that can be used in education:

1. **Modelling of expert performance.** This includes making the problem-solving process of experts explicit to students.
2. **Modelling of processes in the world.** This includes making invisible parts of a process visible (e.g., photosynthesis processes).

The major responsibilities of the teacher during the modelling stage of cognitive apprenticeship are structuring situations of expert practice and demonstrating the expert's thinking process in a manner that does not overwhelm students (Rogoff, as cited in Brill, Kim, & Galloway, 2001). The goal of this stage is to build mental models of experts' cognitive processes so that students can eventually work on their own. In discussing budgeting, modelling can mean demonstrating how information necessary for preparing the budgets are arrived at and how there are assembled to form a coherent plan taking into consideration expected inflows and proposed expenditure and the link between the various components of the overall plan.

Scaffolding as a teaching method is a process by which a more knowledgeable other (teacher or more advanced peer) changes the level of support over the course of a teaching session; the more knowledgeable other adjust the level of support to suit the current performance of the students (Santrock, 2001). Think of scaffolding in learning as the scaffolding as used in building and construction, the scaffolding provides support when needed, but it is adjusted or removed as the project unfolds. Collins, Brown, and Newman as cited in Brill, Kim and Galloway (2001)) describe scaffolding as: "a kind of cooperative problem-solving effort by teachers and students in which the express intention is for the students to assume as much of the task on his own as possible, as soon as possible." Scaffolding is based on Vygotsky's concept of the Zone of Proximal Development (ZPD). In classroom teaching, scaffolding may be necessary, but for scaffolding to be effective, the support should just be enough to get them through their current difficulties. This leads to Owusu-Banahene (2008) declaring that teachers should not do for students what they can do for themselves. This could be in the form of using direct instruction at the initial stages of instruction and varies the level of support given to students as their competence level increase.

Coaching, the next method in the cognitive apprenticeship model involves observing students while they carry out a task and offering hints, scaffolding, feedback, modelling, reminders, and new tasks aimed at bringing their performance closer to expert performance. Coaching may serve to direct students' attention to a previously unnoticed aspect of the task or simply to remind the student of some aspect of the task that is known but has been temporarily overlooked. The content of the coaching interaction is immediately related to specific events or problems that arise as the student attempts to accomplish the target task (Collins, Brown, & Holum, 1991).

Coaching and scaffolding are two critical components of the cognitive apprenticeship model. Although coaching does not enjoy the familiarity of its cousin scaffolding in the research literature, some researchers call it the thread running through the entire apprenticeship experience (Collins, Brown, & Holum, 1991). Scaffolding, while distinct from coaching, can be categorized as a type of coaching.

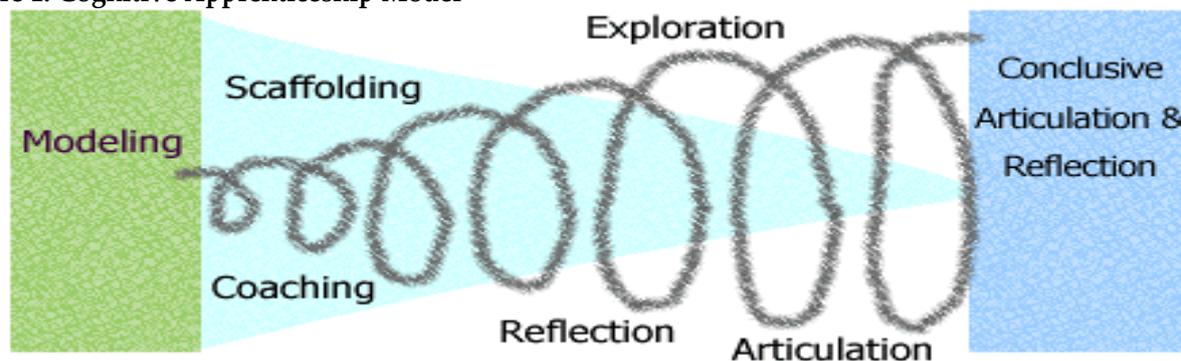
Articulation commonly means the processes of verbalizing or demonstrating knowledge and thinking processes in order to expose and clarify them. Through articulation, the learners make their learning explicit through language so that community members have a basis of interacting with the learner to refine and expand understanding (McLellan as cited in Brill, Kim and Gallaway, 2001). Articulation is the process by which the behaviourist condition of learning is met. This is in the form of exhibiting the knowledge learnt to afford observers criticize and refine the knowledge and understanding. In the classroom situation, this may be in the form of presentations.

Reflection is an active process of witnessing your own experience in order to take a closer look at it. Reflection as part of cognitive apprenticeship focuses on the “replay” of a novice’s experience to contrast it against that of an expert. “The level of detail for a replay may vary depending on the student’s stage of learning, but usually some form of “abstracted replay,” in which the critical features of expert and student performance are highlighted, is desirable” (Collins and Brown, cited in Brill, Kim and Gallaway, 2001). This is very important as it has the tendency to help learners make sense of difficult and complex skills.

Exploration which is the last but essentially not the least in the cognitive apprenticeship model focuses on pushing students to go beyond what they have already learnt using their current knowledge as a basis. “Exploration in cognitive apprenticeship is pushing students to try out their hypotheses, methods, and strategies with processes similar to those that experts use to solve problems” (Collins cited in Brill, Kim and Gallaway, 2001).

Collins, Brown, and Newman are cited in Brill, Kim and Gallaway (2001) to have opined that, independent exploration of student learning occurs naturally in cognitive apprenticeship when coaching and scaffolding are relaxed and fading occurs. Features of exploration are like those found in discovery learning and inquiry-based approaches. Discovery learning is defined by Sarfo (2007) as a method of teaching that utilizes the inquiry approach to learning. To him, in discovery method, the students are exposed to a situation and are asked to determine or discover principles of procedures explaining the situation. With exploration the teacher poses a more general problem and students are supposed to narrow the general problem into specifics. Exploration does not only involve fading in problem solving but also fading in problem setting as well (Collins, Brown and Holum, 1991). In Figure 1 is a diagrammatic representation of the cognitive apprenticeship model of instruction.

**Figure 1: Cognitive Apprenticeship Model**



Source; Brill, Kim, & Galloway, 2001

The figure above is a model of Cognitive Apprenticeship visualized through a spiral that begins with modelling builds with Coaching, Scaffolding, Reflection, Exploration, and Articulation and ends with Conclusive Articulation and Reflection.

## RESEARCH DESIGN

The research design used for the study is an individual teacher action research. Corey as cited in Agyedu, Donkor and Obeng, (2011) defines action research as the process by which practitioners attempt to study their problems scientifically in order to guide, correct and evaluate their decisions and actions. Agyedu et al (2011, p4) have also assert that the purpose of action research is to solve problems through the application of scientific method to improve practice.

The choice of this research design is necessary because; the issue at hand is to solve a specific problem that is the lack of students' understanding. The said students have difficulties understanding the concept of budgeting and budgetary control. As such it is used to allow for detailed, factual and comprehensive collection and analysis of data.

### **Population of The Study**

The population for the study consists of all the teachers and forms three (3) students of Faith Senior High School in the Kumasi Metropolitan Assembly The total teacher population in the school is fifteen (15) while that of the form three (3) students is Ninety-five (95). The form three classes comprise General Arts, Visual Arts, Home Economics and Business Class with the core study group being the Business Class.

### **Sample and Sampling Procedure**

The sample for the study is made of thirteen (13) students and six (6) teachers. Purposive sampling procedure is used to select the students as well as the teachers. Purposive sampling techniques is ideal when the study is seeking to address a given needs of a group. This group becomes an information rich group. The researcher ought to go out for the group. The same sampling procedure will be used to select the teachers for the study. In terms of the demographics of the students, they are students comprised of eleven (11) boys and two (2) girls all aged between 15 and 17 years. 9 of the boys are aged 16 with 1 boy each of age 15 and 17. The other girl is 15 years of age. There is no disabled or an outlier of any sort in the class. The distribution of the Teachers is presented at the results.

## **DATA COLLECTION INSTRUMENTS**

### **Written Test**

A written quiz/ exercise will be conducted to evaluate students understanding of budgeting and budgetary control before and after implementing the intervention. This is after students conceded that, the topic was taught by the previous teacher, but they still face some difficulties.

### **Questionnaire**

The set of questionnaires consisted of six (6) items. This set of questions will be sent out to the selected teachers to find out teachers' perceptions on students' attitude towards the study of cost accounting and their performances in the subject and the business subjects in general. To ensure valid and reliable data using the questionnaires, the researcher will prepare the questionnaires in advance, which will be a representative of the research questions and pilot them. Two teachers will be made to answer the questionnaires. The questionnaire will reach all the respondents in time and to give them enough time to study the questionnaires and answer them appropriately without rush.

### **Observation**

Students will be observed closely during classes without the knowledge of the students/ respondents. The purpose is to find out the attitude and enthusiasm of students towards the cognitive apprenticeship style of instruction.

### **Interview**

The researcher will conduct face to face interview with the students on their perceptions on the cognitive apprenticeship model of instruction after the various components of the topic is fully treated. The interview will be conducted to gather more facts and confirm the observation results.

### **Intervention Design and Implementation**

This part deals with what the researcher put in place to help find solution to the problem at hand. The interventions were preceded by a written test/quiz/ exercise and evaluated with a quiz/test/exercise.

### **Pre-Test**

The researcher conducted a test to confirm students' assertions that they have treated the topic and have understood the nitty-gritties of budgeting and budgetary control. But the results of the test clearly indicated that, even though the students were taken through the topic, their comprehension was limited to using standardized formats. The researcher then employed indirect counselling techniques to combat students' prejudices about cost accounting in particular and other subjects of the accounting fraternity in general. This was done by verbally asking students about their future career aspiration and linked the various subjects to the various career options.

Furthermore, the lesson objective was linked to their ability to function as entrepreneurs and business executives. This was to enlighten their spirits to some extent and prepare their minds to focus on understanding the concept and application of budgeting and budgetary control and not just on memorizing formats.

### **Implementation of the Intervention**

Some strategies were employed by the research to help remedy the difficulties and false prejudices students bore about cost accounting in general and budgeting and budgetary control among third year business students of Faith Senior High School.

First, the researcher showed to the students a sample budget statement of a not for profit organization and a manufacturing entity to have an idea about what budgets look like. The researcher then took the students through the preparation of a simple income and expenditure budget for a not for profit organization and afterwards a comprehensive budget statement for a manufacturing organization starting from the sales budget to the cash budget emphasizing on how the various components of the budget are arrived at (modelling the execution process for students to see). This was done at a very slow pace to afford students the opportunity to understand and seek clarifications for any ambiguities they might harbour. The researcher then grouped the students into three (3) groups and each group was to prepare a comprehensive budget of their choice and the group is free to seek for minimal assistance from the researcher when faced with difficulties (students allowed to explore with some form of scaffolding and coaching to improve student's proficiency and mastery).

Finally, each group was to be led by a member (with all members having equal chances of being chosen) of that group to present their budget statement to the class for questions, criticisms and commendations (students articulate their skills for group reflections and criticisms).

### **Post Intervention**

It is necessary to evaluate instructional intervention frequently. The researcher conducted another test to evaluate students understanding and to contrast it against the pre-test results. An interview was also conducted to solicit students' opinion on the method used and how it helped shaped their opinion about budgeting and budgetary control and the topics of the accounting fraternity.

### **Data Collection Procedure**

Questionnaires, written test, interviews and observation were all used to collect data. Respondents were expected to provide information and give out their opinions while ticking option or providing favourable responses where necessary. The entire questionnaire was completed and returned. The researcher also conducted a written exercise on the topic before and after the lesson and interviewed the students after the topic (i.e. budgeting and budgetary control was fully treated) to obtain information. The researcher also observed students in class during their lessons to record information.

### **DATA ANALYSIS**

To enable the researcher to process the data into meaningful form, frequency tables and percentages, figures and qualitative descriptions were used.

### Pre-intervention Test Results

At the pre-intervention level, a classroom test (exercise) was conducted to test students understanding of the topic to determine whether the next topic should be treated, the test was basically based on the purpose of budgeting, procedures of preparing budgets and the various items to look out for in preparing a budget. Nine (9) students making up of 69% of the class failed the test by clinching below 39% on a 100% scale with only one student making up only 8% of the class getting above average. Three (3) students making up 23% scored between 40-49%. The test result is tabulated below.

**Table 1: Pre-intervention test results**

| Mark range    | Frequency | Percentage  |
|---------------|-----------|-------------|
| 50%-54%       | 1         | 8%          |
| 40%-49%       | 3         | 23%         |
| 39% and below | 9         | 69%         |
| <b>Totals</b> | <b>13</b> | <b>100%</b> |

Source: Researcher's field survey, 2013

As represented seen in Table 1, majority of the students failed. This implies that, even though the students were taught budgetary and budgetary control, they did not understand and appreciate the concept of the topic. Thus, necessitating a reteaching of the topic.

### Researchers' Observations

The researcher upon scrutiny of the marked scripts, it was peculiar that students were trying to reproduce what is in their notebooks which evidence their lack of understanding of the concept of budgeting and budgetary control. The researcher also observed that, students were always eager for formats and bookish definitions. This prompted the researcher to take interest in the topic and see if the cognitive apprenticeship models of instruction could be helpful in mitigating students' difficulties.

The researcher observed that, due to previous prejudices, students have come to believe that cost accounting is full of abstract concepts and their goal as students is to memorize tables and procedures to pass their examinations. This led students to have less interest in class activities. Some students even resorted to truancy due to the believe that they could easily take notes from their friends and memorise the formats just before exams. The researcher also noticed that there were no adequate teaching and learning materials to help students have better understanding of topics taught, and the style of the few pamphlets available went to reinforce student's prejudices about the subject.

### Questionnaire for Teachers

Upon the test revelations and the personal observations of the researcher, the researcher decided to confirm these observations by seeking other teachers' opinions on the actions and reactions of students during their lessons. In all, six (6) teachers making up two permanent staff and four (4) teaching interns responded to the questionnaire. The respondents consisted of 4 males making up 67% of the respondents and 2 females making up 33% of the respondent population. Below is a distribution of respondents by sex.

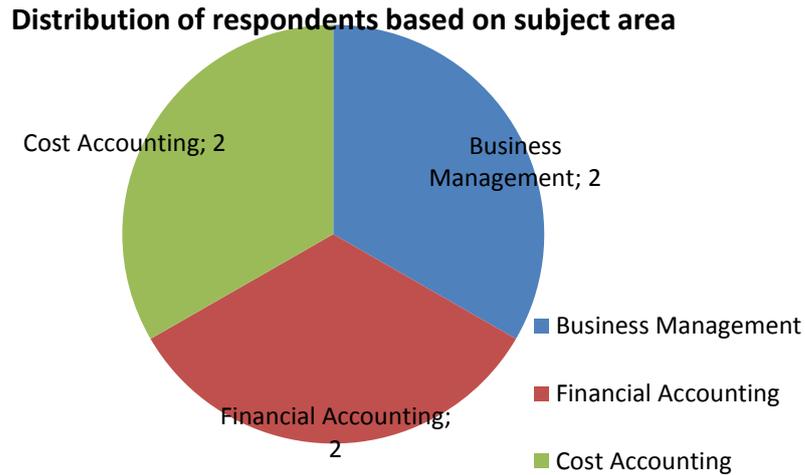
**Table 2: Distribution of respondents by sex**

| Gender       | Frequency | Percentage  |
|--------------|-----------|-------------|
| Male         | 4         | 67%         |
| Female       | 2         | 33%         |
| <b>Total</b> | <b>6</b>  | <b>100%</b> |

Source: Researcher population sample, 2013.

From the Table 2, the respondent population was of male majority and this could imply the responses may be skewed towards male biases. Out of the six (6) respondents, two (2) were financial accounting teachers, two (2) cost accounting teachers and two (2) business management teachers. Thus, all the subject areas took 120° of the circle. This is represented in the figure below.

**Figure 2: Subject Area distribution**



Source; researchers field survey, 2013

From Figure 2, all the three (3) main business elective subjects were fairly represented and this could mean that, the result is valid across all the business electives. On the impact of the teaching method on students' interest in a subject, a statement "method of teaching does not influence students' interest in a topic or subject" was made for respondents to indicate the extent to which they agree. Only one (1) respondent making up 16.7% strongly agreed to the assertion, one (1) respondent agreed to the assertion. Two (2) disagreed to the assertion and two respondents strongly disagreed to the assertion. The results are tabulated in Table 3.

**Table 3: Method of Teaching Does Not Influence Students' Interest in A Topic Or Subject**

| Response          | Frequency | Percentage (%) |
|-------------------|-----------|----------------|
| Strongly agree    | 1         | 16.7           |
| Agree             | 1         | 16.7           |
| Disagree          | 2         | 33.3           |
| Strongly disagree | 2         | 33.3           |
| <b>Total</b>      | <b>6</b>  | <b>100</b>     |

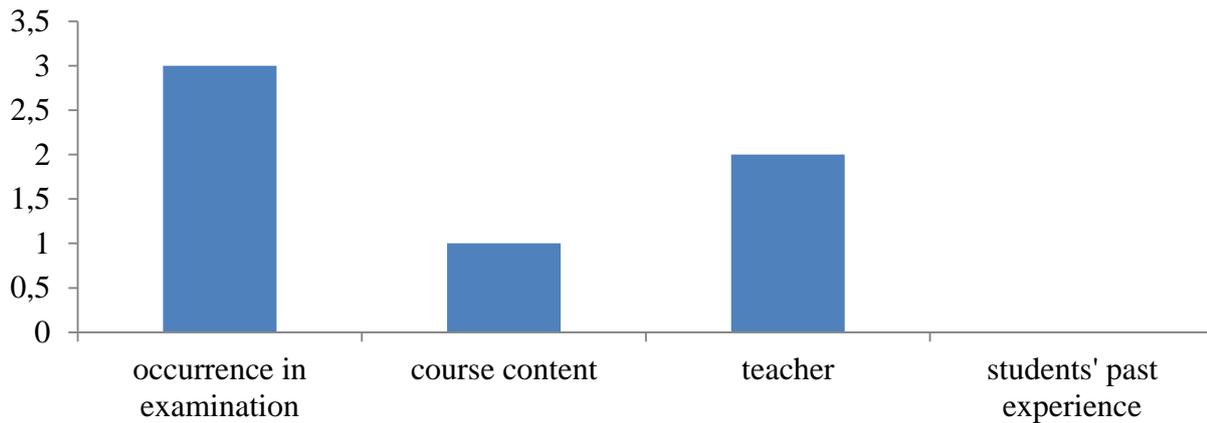
Source; Researcher's Field Survey, 2013

From Table 3, it is conclusive that, teachers are aware that the method of instruction they use is very influential on students' interest whether positively or negatively on a topic or subject.

The respondents were then asked to indicate what in their view influences students' liking for the various subjects or topics. Three (3) of the respondents thought students' interest or liking for the various topics or subjects are inclined by its occurrence in standardized examinations. One (1) respondent thought the course content is very influential in stimulating students liking for the various subjects and topics and two (2) respondents contended that the teacher was key in influencing students liking for a subject or topic and none of the respondents believed students past experience has any influence on students' liking for a subject or topic. This is presented in Figure 3.

**Figure 3: Factors that influences students' liking for a subject or topic**

**what influences students liking for a subject or topic?**



Source: Researcher's Field Survey, 2013

From the Figure 3, occurrence of a topic in standardized examination is the main motivational factor influencing students' liking for a topic or subject in the view of the teachers who responded to the questionnaire.

**Post Intervention Results**

After the intervention design, the researcher evaluated the impact; this was to identify whether the intervention had an impact on students' understanding and possibly their attitude towards budgeting and budgetary control and by extension cost accounting as a subject and other business subjects. This was in the form of post-intervention test (exercise), observation and post intervention interview.

**Post-Intervention Test**

The post intervention test took the same structure as the pre-intervention test (exercise) and unlike the pre-intervention test, the results were impressive. Three students making up 23% clinch above 80%, eight (8) students making up 61% of the students scored between 59%-79%, one (1) person making 8% of the students had below 58% and one person making 8% absented himself for the test. This is presented in the Table 4.

**Table 4: Post-Intervention Test**

| Marks         | Frequency | Percentage (%) |
|---------------|-----------|----------------|
| 80% and above | 3         | 23             |
| 59%-79%       | 8         | 61             |
| 58% and below | 1         | 8              |
| Absent        | 1         | 8              |
| <b>Total</b>  | <b>13</b> | <b>100</b>     |

Source: researcher's field survey, 2013

Going by the results as presented in the Table 4 the intervention had undoubtedly positive effect on students understanding on budgeting and budgetary control as all the students who took part in the intervention showed remarkable improvement on the post-intervention test. Thus, the cognitive apprenticeship model was helpful in mitigating students' learning difficulties.

**Post-test Observation**

The researcher's personal observations revealed a change in attitude regarding students' optimism about course content and what to look out for during lessons. This was manifested questions they ask during lessons.

**Post-Intervention Interview**

After the intervention design was implemented, the researcher decided to conduct an interview for the students to verify and confirm the observations made by the researcher. Most of the students who responded to the interview posited that they now understand the budgeting process and given the necessary information, they could prepare a cash budget for at least a programme. Most of them further stated that, even though the external examinations were initially their main motivational factor that influences them to learn, now they have the feeling that the course content they study is not solely for examinations but will have an impact on their lives. On the teaching method used, most of the students cited the nervousness they experienced during the class presentation as one of the most discomfoting experience they have ever had expressed hope that, with time they will get used to it. They also believed that such presentations could be helpful in terms of their public speaking skills and opined that, it will be great if all topics could be taught using the method even though majority of them taught the method was time wasting considering the crucial period they are in, as WASSCE (West Africa Senior Secondary Certificate Examination ) candidates. Most of the students however answered in the negative when asked whether they would ever wish to miss such a class. Students' opinions on the weaknesses of the method and recommendation were sought and most of them cited the time again as the weakness but had no recommendation to correct the weakness.

### **Findings and Conclusion**

In all, the researcher found that teachers' perception that students are preoccupied with passing examinations skewed their teaching methods towards teaching tricks and formats that will be helpful to students in the examinations with less regards for anything else. This is reinforced by their believes that students' experience outside past and present has no impact in students' motivation for a topic or subject and thus there is no attempt to motivate the students by referencing how the topic or subject might be useful to the students beyond the examination. There was an almost unanimous agreement that the teacher and his/her teaching style and the relevance of the topic or subject are the main motivators of students. After the intervention, there was a remarkable improvement in students' performance and attitudes.

### **Recommendations**

Based on the findings and conclusions, the researcher recommends that proper guidance should be given to Junior High School students going to Senior High School to enable them choose courses that interest them. This will be arguable the best intrinsic motivation. More so, the Senior High School Computerised School Selection and Placement System should be reformed to not place students in courses they have not chosen since this could be a demotivating factor. Also, continuous guidance and counselling should be given to students on why, how and how not to study so that students will think beyond the examination hall.

On teacher training, it is recommended that government and the private sector corporate with educational institutions especially institutions of higher learning to provide student teachers (especially teachers of vocational and/practical subjects) some level of practical experiences in industry so that teachers will not just be seen as belonging to the classroom but as technocrats who are exposing students to the real work needs of industry. Again, subject associations should be created to act as platform for the sharing of innovative teaching and learning materials and methodologies of teaching. Teachers must also be encouraged to provide simulation of real-life expert problems and ways of solving them in the class room for students to appreciates the real life essence of the course materials.

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