

## **Developing interactive pedagogies: A case of accounting pre-service teachers from Ghana**

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### **Abstract**

*This is a study of how eight pre-service teachers developed their skills in developing interactive lessons to teach concepts in Accounting in Senior High Schools in Ghana. Sequential multiple case study design was employed to observe two cohorts of four pre-service teachers who worked in two phases of a professional development scenario to design and enact interactive Accounting lessons. Data for the study were collected through observation, interviews, lesson documents and questionnaires. Pictures, content and thematic analysis procedures were used to analyse the qualitative data, whilst means and standard deviation were used to analyse the quantitative data. It emerged from the results that the interactive lessons developed and implemented by the pre-service teachers were effective in promoting participation in the classroom. The study also brought to light that interactive teaching promotes collaboration among students through solving problems in groups which helps to strengthen the bond between students. The study thus, advocates the need for teacher training institutions to focus on training teachers to acquire the skills in designing and enacting lessons interactively to promote students' participation in the classroom.*

**Keywords:** Interactive Pedagogies, Professional Development, Pre-Service Accounting Teachers, Accounting Education.

### **Introduction**

Accounting started as a subject of study in Ghana in the 1800s when the Wesleyan Missionary, Rev. Kemp, introduced the teaching of bookkeeping and commercial subjects in schools in Cape Coast and Accra (Antwi, 1992). Today, the subject is being taught in the second cycle and tertiary institutions including high schools, Universities, and Professional Institutions such as the Institute of Chartered Accountants of Ghana (ICAG). However, according to Agyei

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(2013), traditional teaching methods have been used in teaching and learning many subjects including Accounting since the advent of formal education in Ghana. These traditional teaching approaches have been heavily criticized for their teacher dominance giving students little room to practice and interact in the teaching-learning environment (Darkwa & Agyei, 2021). Herrington and Oliver (2000) and Levenson (2000) challenge the traditional teaching pedagogy used in schools as not being retrievable in real-life problem-solving contexts which separate knowing and doing. The authors believe that traditional teaching pedagogies fail to link theory with actual situations. The arguments suggest the need for teachers to integrate new pedagogies which are interactive to promote active learning in education including the teaching and learning of accounting considering its unique nature.

Bhattacharya and Gupta (2018) provide a comprehensive review of the nature of accounting, emphasizing its functions, principles, and techniques. They emphasize the importance of understanding accounting as a discipline that entails systematic recording, analysis and reporting of financial transactions. Hargreaves (2018) examines the key characteristics of accounting such as objectivity, relevance, reliability, comparability and consistency. Understanding the nature of accounting is vital for examining how its specific characteristics can either facilitate or hinder pedagogic interactivity in educational settings. Therefore, it is crucial to investigate interactive teaching approaches that align with the nature of accounting; which is the primary focus of this paper. Luoma and Pontinen (2019) discuss the concept of pedagogic interactivity in Accounting education emphasizing the importance of teaching methods such as case studies, group discussions and practical exercises to engage students actively in the learning process. Weygandt, Kimmel and Kieso (2019) present a comprehensive textbook on Financial Accounting emphasizing the practical application of accounting concepts and techniques. Their approach incorporates real-world examples, case studies and interactive exercises to promote pedagogic interactivity and enhance student understanding and application of accounting principles.

In the same context for conducting this study, Darkwa and Agyei (2021) have already emphasized the need for pedagogical approaches that promote interactivity in the classroom when teaching accounting in high schools. We argue that the use of interactive pedagogies that employ practically oriented lessons provides a platform for students to be active and share ideas in the teaching and learning environment. It is therefore imperative for accounting teachers in senior high schools to prepare students to be active in constructing knowledge in the classroom. Consequently, these teachers need to be prepared to have a shift from teacher-centred teaching

approaches to learner-centredness to be able to prepare their students to be active in the classroom during accounting lessons. The learner-centred approach requires interactive pedagogies to engage students fully in a lesson. Studies (Fortin & Legault, 2010; Johnson, Johnson & Smith, 2014) have shown that learning proceeds effectively when the learner is actively and meaningfully involved in the instructional process. Hui and Koplin (2011) further reiterated that learning is said to be active when the learner can see relationships between the new knowledge and their prior knowledge. This aligns with the constructivists' belief that a meaningful context that brings the real world into classroom learning is crucial to promoting effective learning (Hui & Koplin, 2011).

The arguments seem to suggest an absolute need for teachers to shift from traditional teaching approaches to new pedagogies that can facilitate a shift from theoretical learning to approaches that fully engage students in the teaching and learning processes to discover knowledge or truth in solving existential problems. The study has a bearing in this direction; to explore new ways by which accounting teachers in senior high schools can be equipped to teach accounting in a manner that will facilitate the active participation of students during the lesson delivery.

### **Towards the Conceptual Framework of the Study**

The overarching theory that guided the conduct of this study is Constructivism. Constructivist philosophers believe that the best approach to teaching is to fully engage the student in the teaching and learning processes so that his/her engagement would enable him/her personally to discover the knowledge or truth. According to Tetzlaff (2009), constructivism is characterised by pedagogies such as active engagement, constructive, intentional, complex, contextual, collaborative, conversational, and reflective. Wilson (2010) further posited that one of the main attributes of constructivism is the process of meaning-making which is achieved through experience and interactions with the world. According to Taber (2011, p. 44), "... all meaningful learning is a process of personal meaning-making through that individual's current knowledge and understanding." This is to say that individual students make personal meaning of whatever is taught in the classroom in their own respect (Cooperstein & Kocevar-Weidinger, 2004). Even though students make different versions of the meaning of what they are taught by teachers, Taber (2011) asserted that a proportion of students make similar meanings of such concepts in line with the intended objectives of lessons.

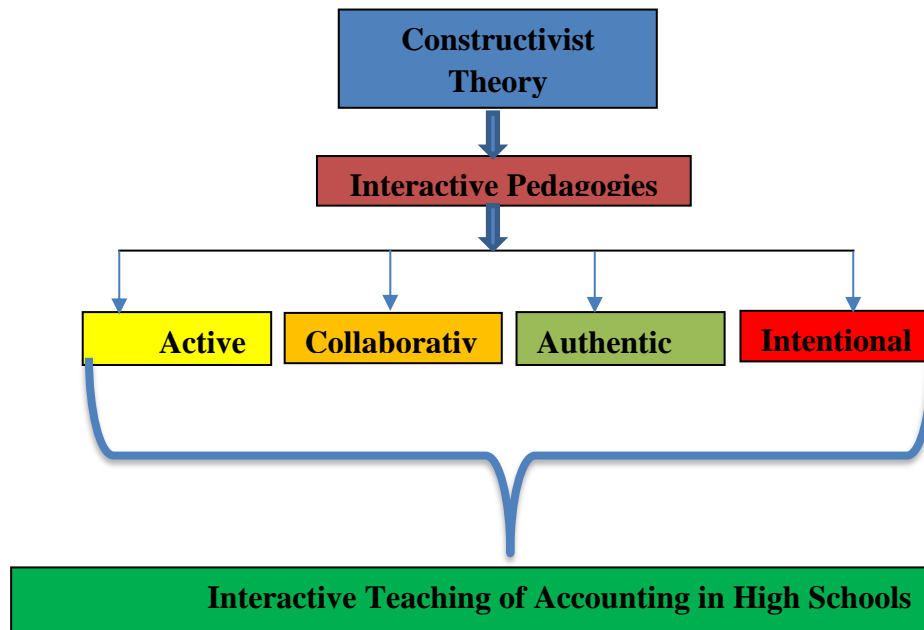


Figure 1: Conceptual Framework for the Study

This study combined the characteristics of constructivism as defined by Tetzlaff (2009) and Wilson (2010) to propose an interactive teaching model for teaching high school Accounting in the context. Interactive was conceptualized as an approach which combined features of active learning, collaborative learning, authentic learning and intentional teaching strategies. Thus, we hypothesized that to promote interactions among students in the classroom, teachers need to make conscious efforts to promote an active, collaborative and authentic learning environment as well as intentional teaching strategies in their lesson delivery. The conceptual framework for the study is presented in Figure 1 below. The four interactive pedagogies that informed the study are further discussed in the next section.

### **Active**

Active learning is generally defined as any instructional method that engages students in the learning process. Active learning requires students to do meaningful learning activities and think about what they are doing (meta-cognition) as individuals; pairs or structured groups. The core elements of active learning are student activity and engagement in the learning process. Benefits of active teaching, according to (PDST, 2017), include; focus on the learner and learning; improved information retention; development of communication and higher-order thinking skills, improved motivation and a variety of learning opportunities (PDST, 2017). In active teaching, the students are expected and encouraged to generate their ideas and knowledge by execution, exertion, and expansion of the known (Wolmarans, 2000; Wilson,

2010). Learners cannot construct knowledge just by passively receiving, acquiring, or accepting it. Knowledge is not formed during the transmission of it and therefore, the emphasis for instruction must be on the creation of meaning and understanding while encountering new information or new contexts (Ravid, 1999). According to Jonassen and Reeves (1996), learners must be given the opportunities to be active in ways that will promote self-direction, creativity and critical analysis of problems requiring a solution. Brown, (2005) affirms that “learning that becomes a continuous, life-long process results from acting in situations.” An active learning environment is student-centred that is, students are supported to construct their meaning of concepts (Mundry, 2005). In an active learning environment, students should be seen doing a lot of activities themselves with the teacher serving as a facilitator in the teaching and learning process.

### ***Collaborative***

Collaborative learning can be defined as a learning environment in which students make contributions to solving problems together (Teasley & Roschelle, 1993). Following social constructivism concepts, learners construct knowledge through interacting with others (Atwater, 1996). Collaborative learning is usually embedded in other student-centred learning models such as inquiry-based learning and problem-based learning. Collaborative learning has potential benefits for cognitive and metacognitive achievement, while its effectiveness depends on factors such as group members' prior knowledge, the composition of the group and the quality of explanations (Janssen, Kirschner, Erkens, & Paas, 2010). Without enough prior knowledge, learners may fail to provide high-quality explanations or construct a deep understanding of the perspectives provided by other group members. High-quality and elaborative explanations (for example, explaining “why” questions) in group discussions predict high group performance (Barron, 2003). Metacognitive activities, for example, planning and monitoring the task progress and evaluating group plans, can also improve group performance (Janssen, Erkens, Kanselaar & Jaspers, 2007). Wilson and Peterson (2006) explained that the meaning-making of concepts is dependent upon the interactions among individuals in their communities (such as the classroom) and their participation in activities. There is, therefore, collaboration in learning through participation. To support students in making meaning of concepts through peer or greater social interactions, teachers must choose instructional strategies that will enable students to collaborate. That is, students must collaborate to push and support each other to learn (Kruse, 2009). In

collaborative teaching, teachers encourage students to share ideas and experiences, work in groups and support each other in the learning process.

### ***Authentic***

Authentic learning is learning designed to connect what students are taught in school to real-world issues, problems, and applications. This implies that learning experiences should mirror the complexities and ambiguities of real life. According to Nicaise, Gibney and Crane (2000), experiences that do not encourage learners to make meaning from their learning will quickly be forgotten. Any learning experience should aim to instil authenticity into every task, lesson and unit to ensure that ‘students can develop problem-solving skills and confidence in their learning abilities’ (Nicaise, Gibney & Crane, 2000). Authentic learning environments occur when instruction is designed to facilitate, simulate and recreate real-life complexities and occurrences (Honebein, Duffy & Fishman, 1993; Wolmarans, 2000). An authentic learning environment provides learners with rich experiences and opportunities to construct knowledge in context, and in ways that make sense to their existing knowledge which is based on prior experiences (Cox-Petersen & Olson, 2000). According to Reeves (1997), contextual learning helps students to make connections between the problem and the solution. There should be a close connection between the knowledge and skills students acquire from the lesson in the classroom and the problems they encounter in their everyday lives (Brown, 2005). This will enable students to use the skills acquired in the classroom to solve the problems they meet in a real-life context.

### ***Intentional***

Intentional teaching according to Epstein (2007), requires wide-ranging knowledge about how learners typically develop and learn. Intentional teachers have a repertoire of instructional strategies and know when to use a given strategy to accommodate the different ways that individual learners learn and the specific content they are learning. Intentional teaching means teachers act with specific outcomes or goals in mind for children’s development and learning. Pianta (2003) defines intentionality as “directed, designed interactions between children and teachers in which teachers purposefully challenge, scaffold, and extend children’s skills”. Berliner (1992) emphasizes that effective teaching requires intentionality in interactions with students, with an understanding of the expected outcomes of instruction. Intentional teaching involves educators being thoughtful, purposeful and deliberate in their decisions and actions. Intentional teaching is an active process and a way of relating to the children that embrace and

build on their strengths. When teachers use intentional teaching practices, they take an active role in learners' learning (QCAA, 2014). According to ACECQA (2012), teachers who engage in intentional teaching use strategies such as modelling and demonstrating, open questioning, speculating, explaining, and engaging in shared thinking and problem-solving to extend learners' thinking and learning. The intentional teacher aims at clearly defined learning objectives for learners, employs instructional strategies likely to help learners achieve the objectives, continually assesses progress and adjusts the strategies based on that assessment. To be intentional means to act deliberately.

For the study, the following conceptualizations were made concerning active, collaborative, authentic and intentional. **Active** - teaching activities that engage students in solving accounting problems independently in the classroom. Accordingly, active teaching was measured in terms of the pre-service teachers' ability to prepare and teach lessons in a manner that engaged students independently in solving practical accounting problems during the lesson delivery. **Collaborative** – teaching dimension that encourages students to work together in groups to solve accounting problems. The pre-service teachers' use of the collaborative teaching dimension was measured in terms of their ability to use strategies that encouraged students to work together in groups to solve accounting problems. **Authentic** - teaching dimension that requires students to apply the principles learnt in accounting to their everyday life experiences. Pre-service teachers' use of authentic teaching was measured in terms of their ability to prepare a lesson that equipped students to apply the principles of accounting to their everyday life experiences. **Intentional** – teaching approach in which the teacher continually monitors students' progress and provides feedback to students in accounting lessons. Intentional teaching was measured in terms of how the pre-service teachers continually monitored students' progress and provided feedback to students during lesson implementation.

### **Professional Development Arrangement**

Based on the framework, a Professional Development Arrangement (PDA) was organized for the pre-service accounting teachers (PSATs). The purpose of the PDA was to provide opportunities and support for the teachers to collaboratively design and use interactive pedagogies in accounting lesson implementation. The PDA was organised for two cohorts of four (4) PSATs in two phases. The professional development arrangement was in three (3) stages: 1) an introductory workshop for the PSATs of the study, 2) the design of interactive lessons by PSATs in groups, and 3) the implementation of lessons designed by the PSATs. The introductory workshop lasted for two weeks and prepared the pre-service teachers by giving

them the theoretical foundation/concepts and practical skills during the first stage. Based on the experience from the workshop, the first cohort of four (4) PSATs was put into teams of two; team 1 (T1Tr1; T1Tr2) and team 2 (T2Tr1; T2Tr2) and tasked to design their lessons in the second stage. The design stage took a maximum period of one week.

In all, two lessons on *Bank Reconciliation Statement (BRS)* and *Value Added Tax (VAT)* were designed by team 1 and team 2 respectively in the first phase of PDA. During the implementation, (stage 3) stage, one member from each of the two teams taught lessons they had designed in a micro-teaching session among themselves. In the process, a thorough evaluation of the lessons and the teaching process was done. Based on feedback received from the teaching try-outs, the teams revised their lessons and taught them again in a second micro-teaching try-out by the second members of the teams. The outcome of the first PDA for the first cohorts of PSATs informed Phase 2 of the PDA. In Phase 2, the second cohort of PSATs was also put into two teams; Team 3 (T3Tr1; T3Tr2) and Team 4 (T4Tr1; T4Tr2) and the entire process of Phase 1 repeated; the implementation however, was extended beyond mere micro-teaching try-outs. First, the PSATs did a peer teaching try-out among student teachers (who were their peers) in a designed classroom situation during the on-campus teaching practice (an integral part of their teaching internship) and secondly, in the real high school context after their lessons were modified based on feedback received from the peer-teaching. The two lessons that were designed and taught were *Depreciation of Fixed Assets* and *Partnership Accounts*.

All the lessons (lesson plans and students' worksheets) designed were to reflect the four features (active, collaborative, authentic and intentional) and purposed to be taught in an interactive teaching environment in which students will be fully engaged in meaningful activities that mirror real-world issues and problems. Students' activities were usually carried out in teams or groups to achieve the objectives of the lesson being taught. The role of the teacher in each case was that of facilitation of the teaching and learning process.

### **Research Question and Research Design**

The main research question that guided the study was: *How interactive were the PSATS' lessons in improving teaching and enhancing the learning of high school accounting concepts?* We conceptualized Interactivity to be lessons evident of all four constructivist pedagogies (active, collaborative, authentic and intentional). A sequential multiple case study design, which involved two cohorts of four (4) pre-service teachers in two different phases was

employed in the study. The sequential multiple case study was considered appropriate as it learned itself to the provision of a more extensive description of a phenomenon (Gerring, 2007). Secondly, the design was deemed appropriate for the study because data for the second case of pre-service teachers were informed by the outcome of the first case.

## **Methods**

### *Participants*

A purposive sampling technique was employed to select eight (8) pre-service teachers who were in the third year Bachelor of Education Accounting programme at the University of Cape Coast. These participants were selected based on the criteria that they had been taught “a course on methods of teaching Accounting” in their third year. They were also ready to undertake their first phase of teaching internship, an on-campus teaching practice in which they teach their peers. Thus, these participants were the best participants to purposefully inform an understanding of the research problem, and central phenomenon, which focused on preparing PSATs to design interactive lessons for senior high schools. Alongside the eight pre-service Accounting teachers, 31 student-teachers (who were their peers) participated in the study. The pre-service teachers were made up of three females and five males, while the student-teachers who volunteered to be part of the study were 19 males and 12 females. The average age of both participants was 24 years. Both groups of participants were in their third year in the teacher education programme at the University of Cape Coast. The Teacher Education Programme is a 4-year programme that prepares students to teach accounting in high schools when they graduate. In the study, the pre-service teachers worked in teams to design and enact the interactive lessons among themselves as micro-teaching, to their student peers (as peer teaching) and subsequently to second-year high school students in two separate senior high schools (Schools A and B) classroom contexts. In all, 80 senior high school students were involved in the study. Their mean ages were 19 and 22 respectively for School A and School B respectively.

## **Research instruments**

### *Student questionnaire*

A questionnaire was used to collect data for the study. This was used to measure the high school students’ perceptions about the interactiveness of the lessons implemented by the pre-service teachers. The questionnaire included items that assessed the level of interactivity (active, collaborative, authentic and intentional) exhibited by pre-service teachers in the lesson delivery

on a five-point Likert scale format (from 5-strongly agree to 1-strongly disagree). The scores are interpreted as follows: 1 is the lowest possible score, which represents a very strong negative opinion, while 5 is the highest possible score which represents a very strong positive opinion. The questionnaire comprised 17 items and was grouped into the sub-scales *Active* (3 items), *Collaborative* (6 items), *Authentic* (4 items) and *Intentional* (4 items). The questionnaire was administered to the SHS students after the implementation of the lessons by the pre-service teachers. Table 1 shows the internal consistency reliabilities and sample questions for each of the sub-scales.

*Table 1: Internal Consistency Reliabilities and Sample Questions for each Interactive Pedagogy*

Sub-scale	Cronbach's alpha	Sample Questions
Active	0.76	The lesson provided me with the opportunity to engage in the learning activities.  The lesson was participatory enough.
Collaborative	0.81	The lesson provided opportunities for me to interact with my peers throughout the class  I understood the questions we solved together as a group better.
Authentic	0.79	The lesson was designed to mirror real-world context.  The lesson experiences helped me to develop problem-solving skills
Intentional	0.88	Teacher clearly defines learning objectives to guide learning during the lesson  Teacher continually assessed our progress throughout the lesson

*Interview guide*

Interview data were collected after each session of peer-teaching as well teaching in the real high school classroom context. The interview focused on PSATs experiences and opinions of the interactive lesson from the designing to enactment stage. To ensure the content validity of the questions on the interview guide, the first draft of the guide was shown to two experts for their comments and review. The suggestions from the experts were used to improve the quality of the items in the interview guide. Two raters coded the interview data and used a sample of two interviews; the interrater reliability (Cohen's K) was  $K = 0.93$ .

#### *PSATs lesson artefacts*

Lesson artefacts designed by the pre-service teachers were also used as sources of data for the study. Thus, four lesson documents developed and implemented by the teams served as sources of data. These lesson artefacts were examined to ascertain the extent to which the pre-service teachers designed lessons that incorporated interactive pedagogies and activities. Interrater reliability of the lesson plans was calculated. The interrater reliability (Cohen's K) assessed for the lesson documents was  $K = 0.94$ .

#### *Observation (Researcher's logbook)*

The researchers' logbook was used to maintain a record of activities and events occurring during the classroom implementation of the lessons designed by the PSATs.

### **Data analyses procedure**

A combination of qualitative and quantitative methods of analyses was employed due to the use of different instruments used for data collection. Descriptive statistics specifically means and standard deviations, were used to analyse the quantitative data from the high school students. Interview data were audiotaped and transcribed using pattern coding techniques while content analysis in which major codes were identified and clustered was done for the lesson documents. The information recorded in the researcher's logbook was analysed qualitatively using data reduction techniques (Miles & Huberman, 1994).

### **Results**

A major aspect of the research question that guided the study was to measure the extent to which the lesson designed and implemented by PSATs reflected the four pedagogical strategies that were used as a basis for assessing the interactivity of a lesson. In addressing this, both quantitative and qualitative data were analyzed to establish the extent of interactivity of PSATs' lessons.

Results from the qualitative data showed that lessons designed and implemented by the pre-service teachers were interactive. This was reflected through the PSATs' developed lesson plan documents, interview data with the PSATs and the Researchers' observations. For example, observation data gathered during the teaching tryouts of the lessons revealed that the PSATs were able to engage their students independently in learning concepts in accounting (i.e., Active). It was observed in the course of the lesson that the PSATs posed questions for their students to think critically as individuals on their own and provide answers to the questions. In this case, each student in the class was seen taking an active part in solving the questions since each would be required to provide his or her answer to the question. This active engagement of the student provided an opportunity for the teacher to evaluate each student's learning ability and also identify students' weaknesses to aid those who may need extra help in the lesson.

It was further observed during the lesson implementation that; the pre-service teachers were able to engage students in group work (Collaborative) for divergent knowledge expressions where students shared ideas in constructing their meaning of various concepts in accounting. Evidence obtained in the classroom showed that the PSATs demonstrated collaborative strategies during the lesson delivery. This stance is made from the fact that in the implementation process, students were seen performing most of the tasks in teams. The PSATs posed questions for the teams and each team worked collectively to find solutions to the questions. The PSATs then invited each team leader to present their group's solution to the entire class.

The PSATs, also confirmed in the interview sessions conducted immediately after the lesson delivery that their designed lessons promoted collaboration among students in the teaching and learning process. This assertion was made in response to the question: In what way did the lesson activities encourage learners to collaboratively construct their understanding of the concept taught? Below are some of the responses gathered from the PSATs in response to the question above.

**T1Tr1:** *The lesson activities mostly were performed in groups. This encouraged students to share ideas hence, they were able to construct their understanding through the knowledge shared.*

**T2Tr2:** *Participation was higher than in the traditional settings and students were happy and motivated when working in teams in*

*solving the activities. Students were able to share their views with their peers during group discussions.*

**T3Tr 2:** *Most of the activities undertaken were done in groups for students to interact and share ideas. Through this approach, most of the students were able to learn from each other.*

Analysis of lesson artefacts prepared by the PSATs also showed that the teachers planned to use interactive pedagogies in their lessons to enhance students' participation in the classroom. This assertion was made based on the fact examination of the lesson plan documents by the PSATs revealed that the PSATs' lesson artefacts projected all four interactive pedagogies (active, collaborative, authentic and intentional) to encourage students' participation during delivery. The teachers designed most of the activities in such a way that students would be encouraged to work in teams in providing answers to the questions in the activities. Students working in groups in the classroom could help them to share ideas about an issue and also appreciate the fact that there are different ways of solving one single problem. Group activities also create an atmosphere where students interact with each other in the teaching and learning process which helps students to accept each other's strengths and weaknesses in the classroom and how they could collectively assist each other to improve on their weaknesses as team members. Further analysis of the lesson artefacts also revealed how the pre-service teachers designed their lessons to connect the learning experiences in the classroom to a real-life context (Authentic). Studies have shown that learning proceeds faster when the learners can connect what they learn in the classroom to their everyday life experiences. This implies that authentic lessons could equip students to apply the concepts, principles and theories learnt in the classroom to solve real-life problems as they meet them in their everyday experiences.

Analysis of the activity sheets also proved that the pre-service teachers planned to make their lessons authentic. This is because some of the tasks on the activity sheets were designed to mirror the real-life situation. This presumably could create a teaching and learning environment that would reflect the complexities of the everyday life experiences of the learners. This assertion was further confirmed during the lesson implementation when it was observed that students actually worked on tasks that mirrored their everyday life experiences. Students were able to apply concepts and principles in the lesson beyond the classroom scenario.

Findings from the qualitative analysis were further corroborated by the quantitative data collected from the SHS students after the implementation of the lessons. The questionnaire sought to ascertain students' perceptions about the effectiveness of the lessons designed and implemented by the PSATs. Table 2 presents the mean scores of the student's responses.

*Table 2: Students' Perceived Effectiveness of Lessons Taught by PSATs*

Dimension	Mean	Standard Deviation
Active	4.54	.75
Authentic	4.26	.86
Collaborative	4.44	.78
Intentional	4.36	.84
Total	4.40	0.81

From the students' perspective as reported in Table 2, indicated that the lessons were effective. This assertion was made based on the fact that in terms of the interactive pedagogies which served as the basis for measuring the effectiveness of a lesson in this study, *Active* dimension recorded the highest mean value ( $M = 4.54$ ,  $SD = .75$ ), this was followed by *Collaborative* ( $M = 4.44$ ,  $SD = .78$ ). The high mean scores for (Active and Collaborative) dimensions were also confirmed by the observation and interview data collected during the study. It was observed during the implementation of the lessons that there were a lot of activities for students and most of these activities were done in groups which projected more of the Active and Collaborative features than the Authentic and Intentional features. It is obvious from Table 2 that the *Authentic* dimension recorded the lowest mean ( $M = 4.26$ ,  $SD = .86$ ). This could imply that probably the PSATs had difficulty in relating some of the concepts in accounting to real-life experiences. However, in general, an overall mean of ( $M = 4.40$ ,  $SD = .81$ ) was recorded indicating that the students agreed that the lessons were effective although the standard deviation suggests that the responses were not clustered around the mean value.

## Discussion

The study focused on preparing eight PSATs to design and implement interactive lessons for accounting. The PSATs were grouped in teams of two to design and enact interactive lessons after going through professional development training. The lessons designed by the PSATs

were implemented in both micro and peer teaching sessions as well as in the real SHS classroom context. The results obtained from the analyses of the lesson artefacts, interviews, observation and questionnaires indicated that lessons designed and implemented by the PSATs were interactive. Interactive was conceptualized in the study as the extent to which the four (4) pedagogies for interactive teaching (Active, Collaborative, Authentic and Intentional) were projected in the design and implementation of the lessons. Generally, there was evidence of interactivity in the lessons as the PSATs were able to employ all four interactive pedagogies in their lessons.

Both qualitative and quantitative data were collected to determine the effectiveness of the lessons designed and implemented by the PSATs. Generally, findings that emerged from the results of the study revealed that the lessons designed and implemented by the PSATs in the Senior High Schools were effective since the lessons promoted interactive teaching and learning in a constructivist manner which enhanced students' learning outcomes. The qualitative results from the perspective of the pre-service teachers showed that all the accounting lessons reflected all four dimensions of interactive teaching (*Active, Collaborative, Authentic and Intentional*).

The qualitative results showed that the PSATs were able to use the interactive lessons to 1) engage their learners in learning the subject matter (*Active*). This implies that for learners to be very active in accounting lessons the teacher can provide the learners with samples of invoices from various businesses and discuss the key components of an invoice such as customer's information, date, description of goods or services, quantities, prices and total amount with the learners. After discussing the features, the teacher can engage learners in activities to record transactions, journalise the entries and post them to the general ledger. 2) engage learners to work in groups to ascertain divergent knowledge expressions to promote the teamwork abilities of the learners (*Collaborative*). For teachers to promote teamwork among accounting students during lessons, the teacher can for example explain the types of inventories such as raw materials, work-in-progress, and finished goods with physical items or images of products to represent each inventory. Using group activities, task each group to calculate the cost of goods sold and closing inventory using different inventory valuation methods such as First-In-First-Out (FIFO) or Last-In-First-Out (LIFO). Use inventory counts or simulations to teach students about the importance of accurate inventory management and its impact on financial statements. 3) relate learning of accounting concepts in the classroom to students' personal experiences and real-world context (*Authentic*). For teachers to connect accounting

concepts learnt in the classroom to real-world scenarios, the accounting teacher, for instance, can explain the processes involved and the documents needed in opening a bank account. The teacher can further discuss the types of accounts available and demonstrate how to record bank transactions in the accounting records. Present a real or dummy bank statement to students for them to analyse and discuss the items found on the bank statement. Assign students tasks to open dummy bank accounts, deposit and withdraw funds, and reconcile bank statements with the accounting records, and 4) measure students' performances on activities through monitoring, evaluation and providing feedback to students for them to improve their learning outcomes (*Intentional*). For example, the teacher can introduce students to the concepts of ledgers and their importance in maintaining financial records. Assign transactions to students and ask them to record the transactions in the appropriate ledger accounts such as cash, accounts receivable, accounts payable, or inventory. The teacher can deliberately conduct periodic reviews of students' work to ensure students understand how transactions affect different accounts. Interactive learning engages students and promotes better retention of concepts and therefore by incorporating these practical elements into accounting lessons, teachers can create an enriching educational experience for students.

Similarly, the quantitative results confirmed that the interactive lessons designed by the PSATs promoted interactivity (*Active, Collaborative, Authentic and Intentional*) in teaching SHS accounting (see Table 2). It is clear from Table 2 that, the overall mean values recorded for the four dimensions of interactive teaching were; Active = 4.54; Collaborative = 4.44; Authentic = 4.26 and Intentional = 4.36. This implies that the interactive lessons designed and implemented by the PSATs were effective in promoting interactions among accounting students in the classroom during the teaching and learning of accounting in Senior High Schools. For example, findings from both PSATs and students who were involved in the study revealed that the lessons designed by the pre-service teachers projected interactive teaching of accounting and also enhanced students' learning outcomes. These findings from the current study are consistent with the findings of a study conducted by Allan (2007) that the integration of interactive pedagogies in teaching has the potential to make the lesson more enjoyable and sustain students' interest. The results further revealed that the use of interactive pedagogies in teaching concepts in accounting in SHS encouraged the students to be active in the teaching and learning process (see Figure 2) which implies students did most of the activities on their own which helped them to think critically in constructing their knowledge. This finding aligns with the view of Ravid, (1999) that active learning must happen for knowledge to be owned by

the learner. Similarly, according to Jonassen and Reeves (1996), learners must be given opportunities to be active in ways that will promote self-direction, creativity and critical analysis of problems requiring a solution.

Even though the results of the study appear to suggest that a blend of all four dimensions (*Active, Collaborative, Authentic and Intentional*) played a key role in attaining interactivity in accounting lessons, their unique contributions as perceived by both the PSATs and students seem to differ from one dimension to the other. This was particularly so because the results revealed that among the four dimensions, the *Collaborative* feature seems to have been mostly projected. This might be because the pre-service teachers might have linked their understanding of interactivity more to *Collaborative* teaching than the other three dimensions. This seems to suggest that the *Collaborative* dimension goes beyond providing platforms for divergent knowledge expressions as suggested by Koh (2013) to inherently sustain the other three dimensions to facilitate the creation of an interactive teaching and learner-centred environment. Wolmarans, (2000) also reveals that empirical research indicates collaborative learning promotes higher achievement than competitive and individualistic learning does. Evidence from the study revealed that the PSATs were able to use interactive teaching to boost students' motivation and engagement in their classrooms. The approach provided the platform for the PSATs to make their teaching and learning sessions a whole lot of fun. Based on the findings discussed above, the study concludes that the interactive lessons that were designed and implemented in the study were effective in promoting interactions in the classroom during the teaching and learning of concepts in accounting.

## **Conclusion**

The study brought to light the essence of training pre-service teachers to develop their skills in preparing interactive lessons. It emerged from the study that an interactive teaching strategy has the potential to make students more independent and active in the classroom and at the same time provide collaboration among students. Interactions in the classroom during teaching and learning session promotes participation and discussions among students which makes students enjoy lessons and also make meaningful contributions willingly. Additionally, during interactive teaching sessions, teachers can ask their students to solve a problem in groups. This further makes the process more fun-filled when students get to complete a work along with their friends, or classmates. It also helps make their bond stronger. The study, therefore, highlights the need for teacher training institutions to focus on training teachers to acquire the

skills in designing and enacting interactive lessons to promote students' participation in the classroom.

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