Active Learning: Creating Excitement and Enhancing Learning in a Changing Environment of the 21st Century

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Abstract

The environment is changing very fast, it is reshaping at a rapid pace specifically because the emergence of new technologies is changing the society, changing the way we live, the way we communicate and do business and also the way we learn. Consequently, our educational systems are facing significant pressure to change the way we educate our children too in order to adequately prepare them to live, learn, and work in a global, digital age. Education is all about change and creativity, therefore there should be creative models for engagement in learning in a shifting educational landscape. Education in the 21st century is different from what it used to be in the 17th or 18th century because of the changes overtime and subsequently the variations in the learners' needs particularly in this world of technological advancement. Teaching and learning process should be more effective by constant renewal in the knowledge impacted and shared with the students all the time. The mode of instruction delivery needs to change from traditional teacher-centred to new learning that is learner-centred and globally acceptable as is the case with the USA and other countries where education is undergoing a major paradigm shift (change) from traditional learning environments focused on the teacher as the "deliverer" of knowledge to new open learning environments focused on the learner as information seeker. Although the movement in the USA and other developed countries took root first at the primary and secondary levels of education, it has had an impact on tertiary education as well. Likewise, there should be turn of the tide in the Nigerian Educational System.

Introduction

Education controls the development of any nation because no nation can rise above the products of its educational system (Ikoro 2005). The essence of education at any level is to produce knowledgeable, skilled and productive individual with a sound mind. The knowledge gained through education should be lasting, it should be utilised by the students throughout the lifetime. Orr (1991) asserts that:

> *"The goal of education is not mastery of subject matter, but of one's person. Subject matter is simply the tool. Much as one would use a hammer and chisel to carve a block of marble, one uses ideas and knowledge to forge one's own personhood. For the most part we labour under a confusion of ends and means, thinking that the goal of education is to stuff all kinds of arts, techniques, methods, and information into the student's mind, regardless of how and with what effect it will be used".*

Likewise, Newman (2008) affirms that "any kind of knowledge, if it be really such, is its own reward. So, the pursuit of knowledge should not be looked at in terms of what it is going to do for you in the future. It should be looked at as beneficial in itself. Knowledge is something that you gain that cannot be taken away from you".

This is clearly indicated in the Nigeria Philosophy of Education (2004) which is based on the integration of the individual into a sound and effective citizenry and equal educational opportunities for all citizens of the nation at the primary, secondary and tertiary levels – a meaningful and achievable philosophy of education which is geared toward learning in a changing environment and suitable for the progress of the country. A pertinent question here is "How far has the Nigerian educational system implemented this omnibus philosophy of education to ensure that students are learning in a changing environment?

Nigerian Educational System and Challenges

Nigeria, a developing country for the past 52 years after her inderpendence has been facing economic, social, political and educational challenges (Adegoke, 1998; Adomi 2005a; Buaari 2002; Okwudishu 2005; Plante and Beattie 2004). The educational challenges led to the introduction of different reforms in the educational system and switching from the 6-5-2 3 to 6-3-3-4 to 9-3-4. The reforms were designed to bring about developments in areas of needs through infusion of modern methods of teaching and curriculum implementation as indicated by the Federal Government of Nigeria, in the National Policy on Education (Federal Republic of Nigeria, 2004). Infact, the Nigerian government recognizes the prominent role of ICTs (Information and Communication Technologies) in the modern world and tries to integrate it into educational system. To actualize this goal, the document states that government will provide basic infrastructure and training at the primary school. The Federal Ministry of Education launched an ICT-driven project known as School Net (www.snng.org) (Federal Republic of Nigeria, 2006; Adomi 2005; Okebukola, 2004), which was intended to equip all schools in Nigeria with computers and communication technologies.

However, this seems to be an illusion as indicated in the reports by many investigators that this was never implemented. For intance Adomi and Kpangban (2010) in their investigation of the causes of low level of ICT application in Nigerian high schools found that "Limited/poor information infrastructure" ranks first; "Lack of/inadequate ICT facilities in schools" ranks second as earlier found by Okwudishu (2005); Plante and Beattie (2004) "Frequent electricity interruption" ranks third as reported earlier by Adomi, (2005a); Adomi, Omodeko, and Otole, (2004); Adomi, Okiy, and Ruteyan, (2003). This makes the few schools with ICT facilities unable to use them regularly. "Poor ICT policy/project implementation strategy" was also indicated as a factor. Additionally, a growing body of ERNWACA (Educational Research For West and Central Africa) researchers also reported that the quality of basic education in Nigeria is still threatened because of failure to plan, under funding or mismanagement of funds, poor maintenance culture and politicisation of educational policies and programmes (Adegoke 1998). Similarly, Busari (2002) observed that the present situation in the classrooms is not tailored to laying a sound basis for scientific and reflective thinking which is one of the aims of primary education. It was suggested that science teacher education programme should be restructured to accommodate integrative learning strategies**.** Specifically, education constitutes of a major focus because it is believed that education is an instrument of national development and thus, it could be employed to achieve political, economic and social developments. The development of any nation requires the collective efforts of its citizens and all residents.

The formal education system in Nigeria includes:

- 6 years of primary schooling
- 3 years of junior secondary schooling
- 3 years of senior secondary schooling, and
- 4 years of university education, finally directing toward a bachelor's level degree in the majority of the courses.

The primary, secondary and post secondary levels had witnessed dramatic growth and tremendous changes. Today, at the university level, what used to be five universities between 1948 and 1965 had increased rapidly to 107 universities in 2012 (2012 University Web Ranking) catering for millons of students. Such growth was impossible without incurring a host of problems, several of which were so severe as to endanger the entire system of education as outlined in the Section 1 sub-section 4 of the Nigeria's Philosophy of Education (2004) that:

Education is an instrument for national development; in this end, the formulation of ideas, their integration for national development and the interaction of persons and ideas are all aspects of education;

a) Education fosters the worth and development of the individual, for each individual's sake,and for the general development of the society;
b) Every Nigerian child shall have the right to equal educational opportunities irrespective of any real or imagined disabilities, each according to his or her ability;
c) There is need for functional education for the promotion of a progressive, united Nigeria; to this end, school programmes need to be relevant, practical, and comprehensive, while interest and ability should determine the individual's direction in education.(FRN, 2004).

Ubong (2011) analysed these omnibus provisions of what should be the country's philosophy of education stated above and their corresponding philosophical concepts thus:

- Dewey's multiple approaches to education delivery in a);
- Humanism in b);
- Egalitarianism in c);
- Progressivism, pragmatism, and individualism cum humanism in d).

Similarly, the Section 1 sub-section 5 of the Nigeria's National Philosophy of Education, is based on:

a) the development of the individual into a sound and effective citizen;
b) the full integration of the individual into the community, and
c) the provision of equal access to educational opportunities for all citizens of the country at the primary, secondary, and tertiary levels both inside and outside the formal school system.

Similar to Ubong's (2011) observation, these philosophical statements also have theoretical links to the different learning/developmental theories by Skinner, Thorndike, Piaget, Vygotsky, Pavlov, Watson and Information Processing Model which addressed the various strategies of actively engaging and conditioning learners to learn and develop in a changing environment.

Unfortunately, Nigeria is still faced with economic hardship which increased the engagement in nonacademic moonlighting activities among the teaching staff. Added to these difficulties were such factors as the lack of books and materials, no incentive for research and writing, the use of outdated notes and materials, and the deficiency of replacement of laboratory equipment especially with the remarkable growth from the five universities in 1965 to over 1000 universities in 2012 . The graduates produced and the quality of the certificate cannot withstand the changing environment. It is no wonder that the number one university in Nigeria is ranked as the 1639th university among

the universities in the world (Ranking Web of World Universities, 2012). The few good students produced continued to search for greener pastures and by 1990 the crisis in Nigerian education was such that it was predicted that by the end of the decade, there would be insufficient personnel to run essential services of the country!

Active Learning and Its Components

Investigators refer to active learning as anything that students do in a classroom other than merely passively listening to an instructor's lecture. This includes everything apart from listening practices which help the students to absorb what they hear, to short writing exercises in which students react to lecture material, to complex group exercises in which students apply course material to "real life" situations and/or to new problems (Paulson and Faust 2010). Additionally, Chickering and Gamson (1987) further suggested that for students to be actively engaged, they must do more than just listen: they must read, write, discuss, or be engaged in problem solving. Most importantly, to be actively involved, students must engage in such higher-order thinking tasks as analysis, synthesis, and evaluation.. Paulson and Faust (2010) further distinguished cooperative learning from active learning as covering the subset of active learning activities which students do as groups of three or more, rather than alone or in pairs; generally, cooperative learning techniques employ more formally structured groups of students assigned complex tasks, such as multiple-step exercises, research projects or presentations. They also distinguished cooperative learning from collaborative learning which refers to those classroom strategies when the instructor and the students work together in designing assignments, choosing texts, and presenting material to the class. Clearly, collaborative learning is a more radical departure from tradition of merely utilizing techniques aimed at enhancing student's retention of material presented by the instructor.

A close examination of the description of active learning shows the theoretical links to some learning and developmental theories: Skinner's Operant Conditioning Theory where the learner is active, functional and operates on the environment before being rewarded; Pavlov's Classical conditioning where the learner is conditioned to learn and rewarded, Vygotsky's Zone of Proximal Development and Social Cultural Perspective where the learner learns through the interaction with the social environment and so many others.

Considering the components of active learning strategies, (Mantyla, 1999) posits that good active learning activities are the same, whether presented in traditional or in online environments and activities should:

1) have a definite beginning and ending;
2) have a clear purpose or objective;
3) contain complete and understandable directions;
4) have a feedback mechanism; and
5) include a description of the technology or tool being used in the exercise

He further suggests that when using active learning strategies, instructors/designers will want to consider the following:

1) Can learners complete the activity independently?
2) Will they need specific guidance before or during the activity?
3) Will visuals or other materials be needed?
4) Will they need to collaborate with other learners?
5) How do the learners ask questions?
6) Will there be formative or summative evaluation?

7) What tools will be available to support the activity, including technology, resources, and examples?
8) Should different strategies and tools provide multiple ways of experiencing learning? (Mantyla, 1999.)

THE NEED FOR ACTIVE LEARNING

For the past decades, the majority of college faculties still teach their classes in the traditional lecture mode in which professors talk and students listen, dominate college and university classrooms.Some scholars have criticized traditional method of teaching and argued that it is boring and found that it is one of the factors responsible for absenteeism among the tertiary education students around the globe. For instance, in their cross institutional study of the factors responsible for absenteeism from lectures among the 500 Nigerian and 500 Caribbean tertiary education students, Fayombo, Babalola and Olaleye (2012) found that academic or school-related reasons such as "The poor teaching skills of lecturers leading to boring lectures" top the list while personal, home and society related reasons were also identified. Similarly, in an earlier study at the University of Canterbury, New Zealand, Hunter and Tetley (1999) interviewed 168 full-time students about not only their reasons for not attending lectures but also their reasons for attending and found that tertiary education students will not miss lectures that were interesting and those considered important to their degree, those in which there was a lot of material given out, those where they liked the subject content or in which the lecturer was good, while those that they will not attend according to Gump, (2006) and Nicholl & Timmins,(2005) also, were perceived as academy-centred such as: failure to connect the content of the lecture to assessment or the 'real world', unexciting and unchallenging lecturers. Thus, the students are likely to miss lectures because they are not actively involved in the classroom activities and the content of the lecture did not match the changing environment which are characteristics of traditional lecture method.

Some investigators also reported that active learning is important because: the amount of information retained by students declines substantially after ten minutes (Thomas, 1972); in those experiments involving measures of retention of information after the end of a course, measures of problem solving, thinking, attitude change, or motivation for further learning, the results tend to show differences favouring discussion methods over lecture method (McKeachie, Pintrich, Lin, & Smith, 1987). Numerous researchers and national reports also discussed the use of active learning strategies in the classroom as indicated in the following statements:

- all genuine learning is active, not passive; it is a process of discovery in which the student is the main agent, not the teacher (Adler, 1982);
- students learn what they care about and remember what they understand (Ericksen, 1984);
- learning is not a spectator sport, students do not learn much just by sitting in class listening to teachers, memorizing pre-packaged assignments, and spitting out answers, they must talk about what they are learning, write about it, relate it to past experiences, apply it to their daily lives. They must make what they learn part of themselves. (Chickering and Gamson, 1987);
- The sort of teaching we propose requires that we encourage active learning and that we become knowledgeable about the ways in which our students hear, understand, interpret, and integrate ideas. (AAC Task Group on General Education, 1988, p. 25).

- "One must learn by doing the thing, for though you think you know it you have not certainty until you try".(Sophocles, 5th c. B.C.)

Regarding the need for active learning, some investigators also pointed out the limitations of traditional method of teacing. Turner (nd) in her presentation on "Learning in a Digital World: The Role of Technology as a Catalyst for Change in the University of Education, Winneba, Ghana", claims that traditional method has some characteristics/limitations because:

1) it does not meet the diverse needs of many learners with different learning styles and capabilities as we have in schools today;
2) it does not cater for problem solving skills needed by students in the real world which requires the ability to see a problem from multiple points of view by the students;
3) there is no flexibility in traditional method, therefore learnres are not encouraged to reach their full potentials;
4) of rigid assessment, relying on written tests that cannot assess the full range of one's achievements and potentials.

Contrarily, Bonwell (1996) summarised the major characteristics/advantages associated with active learning strategies thus:

1) Students are involved in more than passive listening;
2) Students are engaged in activities (e.g., reading, discussing, writing)
3) There is less emphasis placed on information transmission and greater emphasis placed on developing student skills;
4) There is greater emphasis placed on the exploration of attitudes and values
5) Students' motivation is increased (especially for adult learners)
6) Students can receive immediate feedback from their instructor
7) Students are involved in higher order thinking skills (analysis, synthesis, evaluation)

Hence the need for active learning, a learner centred method in the changing environment.

Active Learning Strategies

The techniques of active learning are those activities which an instructor incorporates into the classroom to foster active learning (Paulson & Faust 2010). It is proposed that strategies promoting active learning be defined as instructional activities involving students in doing things and thinking about what they are doing (Chickering & Gamson 1987).

In The University of the West Indies, CaveHill Campus, the University authority recognised the need for learners to be active in the classroom and be actively engaged therefore, lecturers have been encouraged to undergo the Certificate in University Teaching and Learning (CUTL) Training to improve their teaching skills so that they can use the active learning techniques and consequently be more effective in classroom teaching. I incorporated some of these techniques into the classroom activities during the Developmental Psychology II (97 students) and Learning Theory and Practice lecture (178 students) lectures to make my psychology students active in the class, to create excitement and also promote learning. These various techniques of active learning have been described and categoriosed in different ways by the researchers. Below are some examples of active learning strategies that I incorporated into my lectures to make learning fun and at the same time promote it.The examples of active learning strategies that can be adapted in the classroom included those categorised by Paulson and Faust (2010) but not limited to:

Cooperative Learning Exercises

For more complex projects, where many heads are better than one or two, students may work in groups of three or more. As the term "cooperative learning" suggests, students working in groups will help each other to learn. Generally, it is better to form heterogeneous groups (with regard to gender, ethnicity, and academic performance), particularly when the groups will be working together over time or on complex projects; however, some of these techniques work well with spontaneously formed groups. Cooperative groups encourage discussion of problem solving techniques ("Should we try this?" etc.), and avoid the embarrassment of students who have not yet mastered all of the skills required.

- **Role Playing** - Here students are asked to "act out" a part. In doing so, they get a better idea of the concepts and theories being discussed. Role-playing exercises can range from simple distinguishing concepts such as "positive reinforcement", "negative reinforcement", "punishment" etc as done in my Learning Theory and Practice class to the complex role plays of different parental styles of childrearing and their contributions to the social development during the childhood stage as role-played in my Developmental Psychology class.
- **Game Show** - Many will discard the idea that one would literally play games in a university setting, but occasionally there is no better instructional tool. This strategy is good for late lectures, for young and old students in full time or part time programmes. My courses were usually between 7pm and 9pm when many students will be very tired and even hungry, but when it's game time they wake up and participate in the lecture. The game show helps to stimulate their sensory abilities, make them to be actively engaged and at the same time learn. In particular, there are some concepts or theories which are more easily illustrated than discussed and in these cases, a well-conceived game may convey the idea more readily. For example, students may be introduced to new concepts or facts that are hard to convey through lectures.
- **Cooperative Groups in Class/ Group Discussions –** The instructor may pose a question to be worked on in each cooperative group and then circulate around the room answering questions, asking further questions, keeping the groups on task, and so forth. After an appropriate time for group discussion, students are asked to share their discussion points with the rest of the class. The ensuing discussion can be guided according to the "Questions and answers" techniques. This strategy was used effectively especially during the tutorial classes.
- **Panel Discussions** - Panel discussions are especially useful when students are asked to give class presentations or reports as a way of including the entire class in the presentation. Student groups are assigned a topic to research and asked to prepare presentations. Each panelist is then expected to make a very short presentation, before the floor is opened to questions from the audience. The key to success is to choose topics carefully and to give students sufficient direction to ensure that they are well-prepared for their presentations.
- **Debates** - provide an efficient structure for class presentations when the subject matter easily divides into opposing views or 'Pro'/'Con' considerations. Students are assigned to debate teams, given a position to defend, and then asked to present arguments in support of their position on the presentation day on topic like "Is learning incremental or insightful?" The opposing team should be given an opportunity to rebut the argument(s)

and, time permitting, the original presenters asked to respond to the rebuttal. This format is particularly useful in developing argumentation skills (in addition to teaching content).

Exercises for Individual Students

These techniques according to Paulson and Faust (2010) are aimed at individual students and therefore can very easily be used without interrupting the flow of the class. These exercises are particularly useful in providing the instructor with feedback concerning student's understanding and retention of the material. They are especially designed to encourage students' exploration of their own attitudes and values and to increase retention of material presented in lectures and texts. Here are some examples:

- **The "One Minute Paper" –** This is a highly effective technique utilised frequently when teaching to check students' progress, both in understanding the material and in reacting to course material. I asked students to take a blank sheet of paper, then posed a question either specific or open-ended, and gave them one or perhaps two or 5 minute(s) to respond by writing it down. Some sample questions for Developmental Psychology course include: "What are Chromosomal abnormalities?" and for Learning Theory and Practice course; "What is the difference between positive reinforcement and negative reinforcement?" and so on. Another good use of the minute paper is to ask questions like "What was the main point of today's class material?" This tells you whether or not the students are viewing the material in the way you envisioned. Additionally, the one or five minute paper helps to find out whether the active learning techniques used during the lecture were effective or not.
- **Muddiest (or Clearest) Point** - This is a variation on the one-minute paper, when the instructor wishes to give students a slightly longer time period to answer the questions at the end of a class period or at a natural break in the presentation; e.g "What was the "muddiest point" in today's lecture?" or, perhaps, you might be more specific, asking, for example in Developmental Psychology Lecture on "Biological beginnings": "What (if anything) do you find unclear about the concept of 'Chromosomal Abnormalities/Genetic Influences' ('Traits' 'Genes', 'Alleles', 'Chromosomes' 'Deoxyribonucleic Acid' 'Sex Determination' 'etc.)?", or in Learning Theory and Practice class, "What (if anything) do you find unclear about "Information Processing Model Theory?"
- **Affective Response** - Again, this is similar to the above exercises when students are asked to report their reactions to some facet of the course material - i.e., to provide an emotional or evaluative response to the material. Obviously, this approach is limited to those subject areas in which such questions are appropriate. However, it can be quite a useful starting point for courses in social sciences and education, particularly as a precursor to theoretical analysis. This is very useful because many students don't like theories. For example, students in Learning Theory class were asked of their feelings about Thorndike's Theory or Gestalt Psychology, before presenting what other theorists think of the concepts of the theory or its applicability to learning situations. By having several views "on the table" before the theories were presented, students can be helped to see the material in context and to explore their own beliefs.
- **Reading Quiz** - Clearly, this is one way to coerce students to read assigned material! Active learning depends upon students coming to class prepared. The reading quiz can also be used as an effective measure of students' comprehension of the readings to gauge

their level of sophistication as readers. Further, by asking the same sorts of questions on several reading quizzes, students will be guided as to what to look for when reading assigned text. If you ask questions like "What are the **basic concepts** in Piaget's Cognitive Development Theory?" (As I asked my Psychology students in Learning Theory and Practice Class), you are telling the students that it is the details that count, whereas questions like "What **reason** did Piaget give for a child's inability to conserve at the preoperational stage?" highlights issues of justification.

- **Clarification Pauses** - This is a simple technique aimed at fostering "active listening". Throughout a lecture, particularly after stating an important point or defining a key concept, stop, let it sink in, and then (after waiting a bit!) ask if anyone needs to have it clarified. You can also circulate around the room during these pauses to look at student notes, answer questions, etc. Students who would never ask a question in front of the whole class will ask questions during a clarification pause as you move about the room.

Share/Pair

Grouping students in pairs allows many of the advantages of group work students have the opportunity to state their own views, to hear from others, to hone their argumentative skills, and so forth without the administrative "costs" of group work (time spent assigning people to groups, class time used just for "getting in groups", and so on). Further, pairs make it virtually impossible for students to avoid participating thus making each person accountable.

- **Discussion** - Students are asked to pair up and to respond to a question either in turn or as a pair. This can easily be combined with other techniques such as those under "Questions and Answers" or "Critical Thinking Motivators". For example, after students have responded to statements, such as " Learning is not mediated by ideas" with 'true' or 'false', they can be asked to compare answers to a limited number of questions and to discuss the statements on which they differed. In science classes, students can be asked to explain some experimental data that supports a theory just discussed by the lecturer. Generally, this works best when students are given explicit directions, such as "Tell each other why you chose the answer you did".

Questions and Answers

While most of us use questions as a way of prodding students and instantly testing comprehension, there are simple ways of tweaking our questioning techniques which increase student involvement and comprehension. Though some of the techniques listed here are "obvious", we will proceed on the principle that sometimes bears repeating (a useful pedagogical principle, to be sure!).

- **The Socratic Method:** The instructor tests student's knowledge (of reading assignments, videos, lectures, or perhaps applications of course material to a wider context) by asking questions during the course of a lecture. Typically, the instructor chooses a particular student, presents her with a question, and expects an answer forthwith; if the "chosen" student cannot answer the question presented, the instructor chooses another (and another) until the desired answer is received. This method has come under criticism, based on claims that it singles out students (potentially embarrassing them), and/or that it favours only a small segment of the class (i.e., that small percentage of the class who can

answer any question thrown at them). In addition, once a student has answered a question they may not pay much attention as it will be a long time before the teacher returns to them for a second question. In spite of these criticisms, we feel that the Socratic method is an important and useful one; the following techniques suggest variations which enhance this method, avoiding some of these pitfalls.

- **Wait Time** - Rather than choosing the student who will answer the question presented, this variation has the instructor waiting before calling on someone to answer it. The wait time will generally be short (15 seconds or so) - but it may seem interminable in the classroom. It is important to insist that no one raise his hand (or shout out the answer) before you give the OK, in order to discourage the typical scenario in which the five students in the front row all immediately volunteer to answer the question, and everyone else sighs in relief. Waiting forces every student to think about the question, rather than passively relying on those students who are fastest out of the gate to answer every question. When the wait time is up, the instructor asks for volunteers or randomly picks a student to answer the question. Once students are in the habit of waiting after questions are asked, more will get involved in the process.
- **Demonstrations with questioning (video clips).** A video could be shown to the class to illustrate some theories (Piaget's Theory of Cognitive development) or abstract concepts (hereditary transmission). This will concretize the theories or the concepts or the topic being discussed and make it clearer. For instance, I showed videos during the Learning Theory and Practice lectures to demonstrate in concrete terms the concepts of the different learning theories and also the different stages of human development from conception to adolescence during the Developmental Psychology lectures. In the absence of a psychology laboratory, showing videos can help the students to have a practical experience that will aid their understanding of the topics discussed.
- **Student Summary of another Student's Answer -** In order to promote active listening, after one student has volunteered an answer to your question, ask another student to summarize the first student's response. Many students hear little of what their classmates have to say, waiting instead for the instructor to either correct or repeat the answer. Having students summarize or repeat each others' contributions to the course both fosters active participation by all students and promotes the idea that learning is a shared enterprise. Given the possibility of being asked to repeat classmates' comments, most students will listen more attentively to each other.
- **Quiz/Test Questions -** Here students are asked to become actively involved in creating quizzes and tests by constructing some (or all) of the questions for the exams. This exercise may be assigned for homework and then evaluated (perhaps for extra credit points). In asking students to think up exam questions, we encourage them to think more deeply about the course material and to explore major themes, comparison of views presented, applications, and other higher-order thinking skills. Once suggested questions are collected, the instructor may use them as the basis of review sessions, and/or to model the most effective questions. Further, you may ask students to discuss the merits of a sample of questions submitted; in discussing questions, they will significantly increase their engagement of the material to supply answers. Students might be asked to discuss several aspects of two different questions on the same material including degree of difficulty, effectiveness in assessing their learning, proper scope of questions, and so forth as done for Gestalt Psychology and they came up with these two different questions on the same

topic; "With reference to Gestalt theory of learning, justify the view that 'the whole is more than the sum of its part" or "With reference to Gestalt theory of learning, justify the view that 'learning is insightful"

Immediate Feedback

These techniques are also designed to give the instructor some indication of students' understanding of the material presented during the lecture. These activities provide formative assessment rather than summative assessment of student understanding, Formative assessment is evaluation of the class as a whole in order to provide information for the benefit of the students and the instructor, but the information is not used as part of the course grade; summative assessment is any evaluation of student performance which becomes part of the course grade. For each feedback method, the instructor stops at appropriate points to give quick tests of the material; in this way, she can adjust the lecture mid-course, slowing down to spend more time on the concepts students are having difficulty with or moving more quickly to applications of concepts of which students have a good understanding.

- Finger Signals - This method provides instructors with a means of testing student comprehension without the waiting period or the grading time required for written quizzes. Students are asked questions and instructed to signal their answers by holding up the appropriate number of fingers immediately in front of their torsos (this makes it impossible for students to "copy", thus committing them to answer each question on their own). For example, the instructor might say "one finger for 'yes', two for 'no'", and then ask questions such as "Is learning easily observable?". Or, the instructor might have multiple choice questions prepared for the overhead projector and have the answers numbered (1) through (5), asking students to answer with finger signals. In very large classes like mine, the students can use a set of large cardboard signs with numbers written on them. This method allows instructors to assess student knowledge literally at a glance.
- Quotations - This is a particularly useful method of testing student understanding when they are learning to read texts and identify an author's viewpoint and arguments. After students have read a representative advocate of each of several opposing theories or schools of thought, and the relevant concepts have been defined and discussed in class, put on the overhead projector a quotation by an author or a theorist whom they have not read in the assigned materials, and ask them to figure out what position that person advocates. In addition to testing comprehension of the material presented in lecture, this exercise develops critical thinking and analysis skills. This would be very useful, for example, in discussing the various types of learning theories.

Research Findings on Active Learning Strategies as Tools for Promoting Learning

Many proponents of active learning suggest that the effectiveness of the strategies has to do with students' attention span during lecture. Wankat (2002) suggested that student attention span during lecture is roughly fifteen minutes while Hartley and Davies (1978) in their earlier investigation reported that the number of students paying attention begins to drop dramatically with a resulting loss in retention of lecture material. The same authors found that immediately after the lecture, students remembered 70% of information presented in first ten minutes of the lecture and 20 percent of information presented in last ten minutes. It was suggested that breaking up the lecture

might work because students' minds start to wander and activities provide the opportunity to start fresh again, keeping students engaged.

Thus, after incorporating the active learning strategies into my classroom activities for about eight weeks, I gave my students the Active Learning Strategies Questionnaire to fill to find out whether the strategies are actually enhancing their learning with PowerPoint being the tool/technology used for some of them. Below are the students' ratings on each of the active learning strategies and PowerPoint presentation.

Results

Research Question 1: What is the profile of students' ratings on PowerPoint Presentation?

Table 1: *Profile of students' ratings on PowerPoint presentation (n=158).*

S/N	Items	SD		D		A		SA	
		F	%	F	%	F	%	F	%
1	Power point Presentation facilitates active learning	0	0	5	3.2	65	41.1	88	55.7
2	I love the images and pictures on the slides, they help my understanding in this course	1	0.6	1	0.6	72	45.6	84	53.2
3	The slides stimulate my sensory abilities during lecture	0	0	2	1.3	85	53.8	71	44.9
4	The slides are usually too busy, too many images	94	59.5	47	29.7	1	0.6	16	10.1
5	The slides are usually too long and boring	88	55.7	53	9.5	2	1.3	15	9.5

The result on table 1 revealed that PowerPoint is an effective tool or technology for active learning strategy with 97% agreeing that it facilitates active learning; while 99% also agreed that it helped their understanding during the lectures, while 99% also reported that it stimulated their sensory abilities during lectures etc.

Research Question 2: What is the profile of students' ratings on Discussion?

Table 2: *Profile of students' ratings on Discussion (n=158)*

S/N	**Items**	**SD**		**D**		**A**		**SA**	
		F	**%**	**F**	**%**	**F**	**%**	**F**	**%**
1	Discussion helps me to clarify points discussed during lecture	1	0.6	4	2.5	94	59.5	59	37.3
2	Discussion promotes active learning	0	0	4	2.5	80	50.6	74	46.8
3	Discussion makes me to be lively during lectures	0	0	14	8.9	86	54.4	58	36.7
4	Answering questions in the class helps in self assessment	1	0.6	8	5.1	92	58.1	57	36.1
5	Discussion disrupts the flow of the lecture	87	55.1	66	41.8	1	0.6	4	2.5
6	Discussion during the lecture is a waste of time	62	39.2	88	55.7	2	1.3	6	3.8

The result shown on table 2 revealed that 97% agreed that discussion helps in clarification of points discussed during lecture, majority (97%) also opined that it promotes active learning while 91% stated that it makes them lively during lectures, 94% agreed that it helps in self assessment.

Research Question 3: What is the profile of students' ratings on Group work?

Table 3: *Profile of students' ratings on Group Work (n=158)*

S/N	Items	SD		D		A		SA	
		F	%	F	%	F	%	F	%
1	Group activities facilitate active/cooperative learning	2	1.3	24	15.2	82	51.9	50	31.6
2	Group activities aid my understanding in this course	5	3.2	18	11.4	92	58.2	43	27.2
3	Group work enhances my academic achievement	19	12	20	12.7	84	53.2	35	22.2
4	Group work limits my intellectual capability	17	10.8	23	14.6	76	48.1	42	26.6
5	Group work is too stressful because of the uncooperative attitudes of some group members	63	39.9	32	20.3	36	22.8	27	17.1

Table 3 showcases students' ratings indicating that majority of them (84%) agreed that group activities facilitate active/cooperative learning; 86% indicated that group activities aid their understanding in this course and 75% were of the opinion that it enhances their academic achievement. Interestingly, 75% still reported that it is detrimental to their intellectual capability while 40% indicated that it is too stressful. This is one of the risks of active learning when students may not want to participate in active learning activities.This is in consonance with the assertion that students too seemed to prefer traditional method of lecturing, resist non-lecturing approaches because active learning alternatives provide a sharp contrast to the very familiar passive listening role (Bonwell 1996)

Research Question 4: What is the profile of students' ratings on Role play?

Table 4: *Profile of students' ratings on Role Play (n=158)*

S/N	Items	SD		D		A		SA	
		F	%	F	%	F	%	F	%
1	Role play or promotes student engagement in lecture	0	0	8	5.1	93	58.9	57	36.1
2	Role plays create excitement during lectures	5	3.2	12	7.6	72	45.6	69	43.7
3	Role play helps me to reflect on the topics taught in this course	1	0.6	11	7.0	91	57.6	55	34.8
4	Role play facilitates students' creativity	1	0.6	13	8.2	98	62.0	46	29.1
5	Role play makes the lecture to be rowdy and noisy	91	57.6	52	32.9	2	1.3	13	8.2
6	Role play is just a form of entertainment	76	48.1	44	27.8	18	11.4	20	12.7

In table 4, 95% agreed that roleplay promotes student engagement in lecture, 89% reported that it creates excitement during lectures, while 92% agreed that it helps them to reflect on the topics taught in this course while 91% stated that it enables them to be creative. etc

Research Question 5: What is the profile of students' ratings on videos?

Table 5: *Profile of students' ratings on videos (n=158)*

S/N	Items	SD		D		A		SA	
		F	%	F	%	F	%	F	%
1	Videos promote active learning during lectures	0	0	2	1.3	90	57.0	66	41.8
2	Videos create mental images of the topics taught	1	0.6	0	0	82	51.9	75	47.5
3	Videos facilitate retrieval of learning materials	1	0.6	1	0.6	79	50.0	77	48.7
4	Watching videos during lectures is exciting	1	0.6	7	4.4	87	55.1	63	39.9
5	Watching videos is just a form of entertainment	83	52.5	51	32.3	2	1.3	22	13.9
6	Watching videos during lectures is a waste of time	70	44.3	84	53.2	0	0	4	2.5

Table 5 revealed that 99% of the participants agreed that video show promotes active learning during lectures, 99% again reported that it creates mental images of the topics taught, 99% also indicated that video shows facilitated the retrieval of learning materials while 85% agreed that watching videos during lectures is exciting.

Research Question 6: What is the profile of students' ratings on Game Show?

Table 6: *Profile of students' ratings on Game Show (n=158).*

S/N	Items	SD		D		A		SA	
		F	%	F	%	F	%	F	%
1	Game activities enhance active learning in this course	1	0.6	3	1.9	81	51.3	73	46.2
2	Game activity is good for self assessment	4	2.5	10	6.3	85	53.8	59	37.3
3	Game activities make the lecture lively and interesting.	0	0	11	7.0	80	50.6	67	42.4
4	No need for the game, too childish	63	39.9	86	54.4	3	1.9	6	3.8
5	Game activities waste time during lectures	78	49.4	78	49.4	1	0.6	1	0.6

Table 6 revealed that game show enhances learning in this course as indicated by 98% of the respondents, 91% also agreed that game activity is good for self assessment while 93% agreed that game show makes the lecture to be lively and interesting, 94% also disagreed that it was too childish while 6% agreed.

Research Question 7: What is the profile of students' ratings on Five minute paper?

Table 7: *Profile of students' ratings on Five Minute Paper (n=158).*

S/N	Items	SD		D		A		SA	
		F	%	F	%	F	%	F	%
1	Five minute paper ensures students' participation in the lecture	3	1.9	26	16.5	96	60.8	33	20.9
2	Five minute paper keeps me on my toes.	1	0.6	31	19.6	94	59.5	32	20.3
3	Five minute paper helps to monitor students' progress	1	0.6	19	12.0	100	63.3	38	24.1
4	Five minute paper is a waste of time	10	6.3	23	14.6	68	43.0	57	36.1
5	Five minute paper is like a test	17	10.8	91	57.6	36	22.8	14	18.9

The results on table 7 revealed that 82% agreed that Five minute paper ensures their participation in the lecture, 80% agreed that it kept them on their toes, while 87% agreed that it enhances their academic progress. It may not be surprising to see that, 79% agreed that it's a waste of time while 42% reported that it is like a test., of course students don't like test so they may not welcome anything that is similar to test even when you tell them that it is not a test.

Research Question 8: What is the profile of students' ratings on clarification pauses?

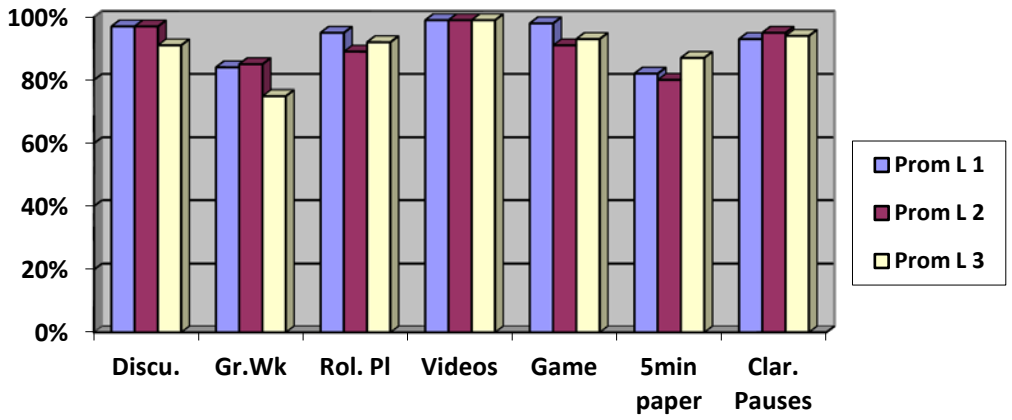
Table 8: *Profile of students' ratings on clarification pauses (n=158)*

S/N	Items	SD		D		A		SA	
		F	%	F	%	F	%	F	%
1	Clarification pauses foster active listening during lectures	3	1.9	8	5.1	103	65.2	44	27.8
2	Clarification pauses help in clarifying points that are not clear	2	1.3	6	3.8	100	63.3	50	31.6
3	Clarification pauses encourage students to ask questions	3	1.9	4	2.5	101	63.9	50	31.6
4	Clarification pauses waste time during lectures	1	0.6	6	3.8	76	48.1	75	47.5
5	Clarification pauses distort free flow of lectures	1	0.6	16	10.1	78	49.4	63	39.9

Finally, the result on table 8 showed that 93% of the participants concurred that clarification pauses foster active listening during lectures, 95% stated that it helps in clarifying points that are not clear, 94% said that it encourages the students to ask questions. Amazingly, majority still reported that clarification pauses waste time during lectures and that it distorts free flow of lectures. Some students are always in a hurry to leave the class, so anything done in the class apart from lecturing is time wasting.

In order to have a quick glance at the varying degrees of the students' agreement that active learning strategies promotes learning , the data was plotted on two charts. Figure 1 revealed the various degrees of the students' agreement regarding active learning strategies promoting learning while figure 2 revealed that video is the best active learning strategy among this sample.

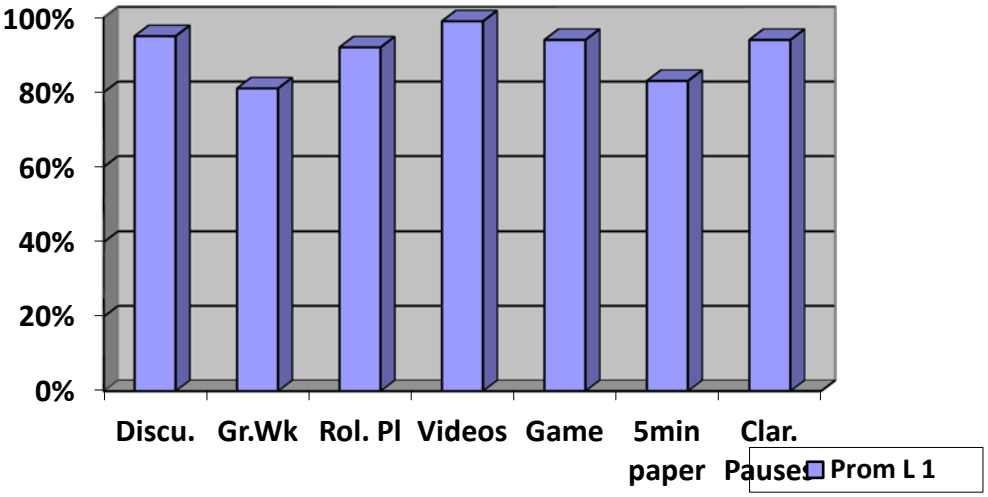
Figure 1: *Chart showing students' responses on active learning strategies promoting learning.*



Key: The three bars indicated the students' responses on active learning strategies promote learning. 1) Discussion; 2) Group Work; 3) Role Play; 4) Videos; 5) Game Show; 6) 5 Minute Paper; 7) Clarification Pauses; with the percentages.

	Discu .	Gr.Wk	Rol. Pl	Video	Game	5min paper	Clar. Pauses
Prom L 1	97%	84%	95%	99%	98%	82%	93%
Prom L 2	97%	85%	89%	99%	91%	80%	95%
Prom L 3	91%	75%	92%	99%	93%	87%	94%
Average	95%	81%	92%	99%	94%	83%	94%

Figure 2: *Chart showing the best active learning strategy that promotes learning.*



These findings lend credence to the earlier reports that active learning strategies are important (Chickering & Gamson, 1987; Ericksen, 1984; McKeachie, et. al., 1987) and can be incorporated in the classroom activities (Bonwell & Eison, 1991; Mantyla, 1999; McKeachie & Svinicki 2006; Paulson

& Faust, 2010 and Prince, 2004). As good as the active learning strategies are however, there are many obstacles or barriers preventing faculty from using them as evident in the findings of this study on some of the strategies. Bonwell (1993) outlined some barriers to active learning:

A. You cannot cover as much course content in the time available;
B. Devising active learning strategies takes too much pre-class preparation;
C. Large class sizes prevent implementation of active learning strategies;
D. Most instructors think of themselves as being good lecturers;
E. There is a lack of materials or equipment needed to support active learning approaches;
F. Students resist non-lecture approaches, as observed by The National Association of Teachers (1907) many years ago that **"**Students today depend too much upon ink. They don't know how to use a pen knife to sharpen a pencil. Pen and ink will never replace the pencil"

Overcoming the Barriers

Bonwell (1996) asserts that there are two primary sets of obstacles that prevent faculty from using active learning strategies in the classroom: (1) the six potential obstacles noted above, and (2) the fact that using active learning strategies involves risk**.** With respect to the six commonly reported obstacles, the following should be noted:

1. Admittedly, the use of active learning strategies reduces the amount of available lecture time that can be devoted to content coverage. Faculty who regularly use active learning strategies typically find other ways to ensure that students learn assigned course content (e.g., using reading and writing assignments, through their classroom examinations, etc.)
2. The amount of pre-class preparation time needed to implement active learning strategies will be greater than that needed to "recycle old lectures;" it will not necessarily take any more time than that needed to create thorough and thoughtful new lectures.
3. Large class size may restrict the use of certain active learning strategies (e.g., it is difficult to involve all students in discussion in groups larger than 40) but certainly not all. For example, large classes can be divided into small groups for discussion activities, writing assignments can be read and critiqued by students instead of the instructor.
4. Most instructors see themselves as good lecturers and therefore see no reason to change. Though lecturing is potentially a useful means of transmitting information, teaching does not equal learning; this can be seen clearly in the painful disparity between what we think we have effectively taught, and what students indicate they have learned on the examination papers that we grade.
5. The lack of materials or equipment needed to support active learning can be a barrier to the use of some active learning strategies but certainly not all. For example, asking students to summarize in writing the material they have read or to form pairs to evaluate statements or assertions does not require any equipment.
6. Students resist non-lecturing approaches because active learning alternatives provide a sharp contrast to the very familiar passive listening role to which they have become accustomed. With explicit instruction in how to actively participate and learn in less-traditional modes, students soon come to favour the new approaches.

A second set of potentially more difficult obstacles to overcome involves increasing one's willingness to face two types of risks.

1. There are risks that students will not: participate actively; learn sufficient course content**;** use higher order thinking skills**;** enjoy the experience
2. There are risks that you as a faculty member will not: feel in control of the class; feel self-confident; possess the needed skills**;** be viewed by others as teaching in an established fashion**.** However, faculty should continue to remember the philosophical statement by Habbert Otto that "Change and growth take place when a person has risked himself and dares to become involved with experimenting with his own life."

Though the classroom use of active learning strategies will always involve some level of risk, by carefully selecting only those active learning strategies that are at a personally comfortable risk level, you can maximize your likelihood of success.

Recommendations and Conclusion

No doubt, for learning to reflect the changing environment, among the Nigerian students, all the stakeholders (the faculty members, the students, the parents, the government) in Education must be prepared to change what they do in order to change how they are doing it. All the stakeholders should realise that "nothing is permanent except change" as stated by Napoleon Hill, the great philosopher and that "The more things change, the more they remain the same **-** Alphonse Karr**.** These philosophies should be embraced to change their outlook to life; that changes are inevitable for success and progress in life. The following recommendations are therefore addressed to the stakeholders thus:

1. The Faculty Members

a. The Faculty Members who are directly in contact with the students in the class should be the first change agent to implement active learning strategies in their teaching. Thus, the reformation of instructional practice in higher education in Nigeria must begin with the effort of the faculty members who must also be willing to change from their traditional, more convenient and less mentally tasking approach to the learner-centred method of teaching which although is highly complex and hectic to practice but is more exciting and more rewarding in terms of knowledge impartation.
b. Learning should be fun through lecturer's efforts by adopting a teaching approach that is centred on 3 basic building blocks: Effective, Engaging, and Enjoyable. This involves spending quality time in planning and structuring the lectures thus making each one effective in the impartation of knowledge by engaging the students and making it enjoyable for them. It should be realised that in this changing environment, new information is worth more than old information and learning never stops.
c. It has also been suggested that an excellent first step is to select strategies promoting active learning that one can feel comfortable with. Such low-risk strategies are typically of short duration, structured and planned focused on subject matter that is neither too abstract nor too controversial, and familiar to both the faculty member and the students. This was earlier suggested by Seth Godin, an American entrepreneur, author and public speaker that "Tools matter, because tools impact the way you interact. You don't need to use every tool, but every tool you use, you must use well"
d. Lecturers' needs should be identified and their skills be enhanced through various training programmes and seminars so as to change their orientation from the traditional lecture

method to interactive and innovative lecture method. A step towards this has been taken by The University of the West Indies, Cave Hill Campus, Barbados by encouraging all faculty to undergo the Certificate in University Teaching and Learning (CUTL) training to enhance lecturer's teaching skills.

2. The Students

a. Many investigators asserted that there are risks that students will not participate actively; learn sufficient course content; use higher order thinking skills; enjoy the experience being shared in the class. It is imperative that the the students develop interests in their academic work; be present at lectures and be actively involved. Bulunuz and Jarret (2009) assert that there is a connection between interest and effort. The more a person is interested in a subject, the more effort he will put into it. He further described an interested person as being engaged, engrossed or entirely taken up by an activity because of its recognized worth. Suffice to say therefore that students' interests will also sustain their lecture attendance and participation, they must be self driven as this intrinsic motivation is stronger than the extrinsic motivation from lecturers, parents and the society and therefore yields better result in learning.
b. There is a popular adage that "you can drag a horse to water but you cannot force it to drink unless it is thirsty". It is when the students are thirsty for knowledge that that they go for lectures and participate. They should not frustrate the lecturer's efforts as quality time would have been spent in preparing and incorporating the active learning strategies into the lectures. "Lecturers open the door, but the students must enter by themselves and be actively involved in the lecture".

3. The Government

a. Pertaining to Nigeria, the government should make efforts to implement the national philosophy of education and addresses the causes of low level of ICT application in Nigerian high schools like: limited/poor information infrastructure; lack of/inadequate ICT facilities in schools; frequent electricity interruption which makes the few schools with ICT facilities unable to use them regularly; poor ICT policy/project implementation strategy" was also indicated as a factor.
b. Attention should be paid to the funding of Education at all levels which is still threatening the quality of Nigerian Education. Efforts should be made to maintain the existing facilities such as the replacement of laboratory equipment especially with the remarkable growth from the five universities in 1965 to over 1000 universities in 2012 to ensure their continuous use.
c. Politicisation of educational policies and programmes should be eradicated so that all learners will have equal opportunities; books and materials should be funded, there should be incentives for research and writing, to eradicate the use of outdated notes and materials by lecturers.
d. Lecturers' and teachers' salaries should be paid on time, to avoid strikes. The practices of active learning strategies need a lot of motivation an investment. Computers must be supplied to schools and there should be internet connections. Electricity must be regular because of the use of technology.

4. Parents

a. Parents' efforts are also vital to students' attendance and participation at lectures. They should provide the financial, moral, social and emotional support essential for their wards' regular attendance at school and participation in class activities. They should not shift the financial responsibilities to the students and should avoid unnecessary demands from them and at the same time, the parents should guide against over pampering the students so that they will have self discipline, respect their lecturers and find it valuable to attend lectures and participate in class activities.

In conclusion, active learning strategies are effective in engaging learners and assisting them in creating their own learning experiences in the changing environment. Active learning strategies make learning to be fun and they motivate students' attendance at lectures and to also participate. To enhance the competence and intellectual capability of the Nigerian learner therefore, the models for active learning should be embraced. It is time to change from the traditional and rigid method to the globally accepted learner – centred method; it is time to invest in the lives of "Today's Youth, Tomorrow's Leaders" through sound education which is the key to bright future. It is time to redeem the image of the country in the international world by curbing the menace of the corruption that constitutes the cog in the wheels of Nigeria's progress. "Nothing endures but change. There is nothing permanent except change. All is flux, nothing stays still."- Heraclitus

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