

**TRAINING OF PRE- SERVICE TEACHERS ON BUZZ SESSION MODE
OF INSTRUCTION AND THEIR LESSON PLANNING SKILL IN BASIC
SCIENCE IN SOUTHWESTERN NIGERIA**

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Abstract

Based on the deficiencies on the issues regarding the Pre-service lesson planning skills, it shows that pre-service teachers' low level of performance in Integrated Science is attributed to lack of adequate pedagogical content knowledge in which they ought to develop the necessary skills of lesson planning which has been an issue attracting the attention of researchers and science educators. This study, therefore concerned itself on training of the pre-service teachers on Buzz session strategy of instruction and its impact on their lesson planning skills in Integrated Science. The study adopted the pretest, posttest, control group, quasi - experimental design. 349 Pre-service teachers from Six Colleges of Education in South-western zone of Nigeria were randomly assigned to treatment. The instruments used were: Pre-service Teachers Lesson Planning Skills Scale (PTLPSS) $r = 0.88$, Pre-service Teachers Self Efficacy Scale (PTSES) $r = 0.81$, Operational Guide for Buzz Session Teaching Strategy (OGBSTS) $r = 0.78$, Operational Guide for Conventional Instructional Strategy (OGCIS) $r = 0.79$, Evaluation Sheet for Assessing Buzz Session Teaching Strategy and Evaluation Sheet for Assessing Conventional

Instructional Strategy. The instruments were validated by two science educators and one expert in measurement and evaluation for both face and content validation. Analysis of Covariance (ANCOVA) was used to test the hypotheses formulated at 0.05 level of significance. There was a significant main effect of treatment on pre-service teachers' lesson planning skills in Integrated Science ($F_{(1,348)}=710.626;P<0.05;\eta^2=0.81$). Buzz instructional strategy had higher mean score ($\bar{X} =67.41$), followed by those in the conventional strategy group with lower mean score ($\bar{X} = 31.20$). There is a significant main effect of self-efficacy on pre-service teachers' Lesson Planning Skills in Integrated Science ($F_{(1,348)}= 8.178;P<0.05;\eta^2= 0.023$). Pre-service teachers with low self-efficacy had higher lesson skills mean score ($\bar{X} =50.52$) than those with a high self-efficacy ($\bar{X} =48.28$). Based on the findings, it is recommended that integrated science lecturers should employ Buzz Session strategy as commonly used strategy in teaching, as it enhanced the pre-service teachers' lesson planning skills in integrated science.

Keywords: Buzz session and Conventional Strategies, Integrated science Lesson planning skills, Training and Pre-service Teachers

Introduction

Lesson Planning Skills is a crucial skill gained during the pre-service teachers' training which is needed by them to organize their activities, construct their goals and get feedback from their learners. Without an effective lesson planning a pre-service teacher cannot be effective. Because planning for a lesson is crucial as it will affect what the teacher does in the classroom. A teacher that prepares for the lesson will be effective in the teaching and learning process. A lesson plan is crucial as it helps teachers design a framework to carry their students to a certain destination.

Lesson plan has to do with goals, knowledge, and sequencing which involves activity procedure, implantation and Assessment (Drost, & Levine, 2015). Lesson planning is a connection requirement between the curriculum and the textbook and what is presented in the classroom literatures and revealed that pre-service teachers found planning for their lessons difficult. Which means that lesson planning skills can be difficult to a novice teacher which will prepare the lesson from textbooks or from browsing from the internet. Also, Simon, Irtwange and Nancy (2010) after searching through literatures concluded that pre-service teachers' or novice teachers spent most of their time planning lessons and found the planning process to be difficult as most of the materials that is needed could not be readily available for the novice teachers to peruse, therefore taking them time to prepare a lesson.

According to Wetzel (2010) and Fielder, (2014) and pre-service teachers identified ideal instructor qualities with teaching skills related to instruction, classroom management, and measurement-evaluation. Also, the study was of the view that most pre-service teachers' teachings skills are not always evaluated but if these are readily evaluated, it would improve on the teaching skills of the pre-service teachers in the tertiary institutions. Therefore, the study is important because it evaluating the teaching skills of the pre-service teachers, this will determine how the pre-service teacher will teach when he/she eventually graduates from teacher training college. The reports on achievement of Pre-service teachers in Teaching Practice for five colleges of education in South West zone in Nigeria from 2012/2013 session to 2015/2016 session.

The comments made by moderators during the teaching practice exercise for school 1 include the following: The lesson plan took into account Pupils backgrounds such as needs/interests/misconceptions, growth of and previous experience in relation to the topic, Introduction incorporated previous knowledge/skills/everyday experience and linked to the new topic, Making reference to previous lesson and everyday experience, Lesson encouraged Pupils to express their prior experiences and explain their ideas related to the content, Content is related to learners' previous experience, Teacher supervised class work, Teachers do not rephrased question of instructional statements, as necessary, Pupils were effectively encouraged to give their prior experiences and explain their ideas related to the content, Pupils were able to solve related problems, lesson objectives Stated in simple and clear language, Questions distributed evenly, Explained concepts clearly in appropriate simple and clear language, Lack explanation and elaboration of main concept, Guide learners to summarize main point of lesson through carefully structured questions, Pupils encouraged to ask and answer questions, The teacher appears to be enjoying the teaching, Time is appropriate distributed: In the lesson plan and In the execution of the lesson, The teacher failed to ensure that learners were engaged in relevant learning activities, The teacher actively solicits the ideas of pupils on content being taught, Evaluation incorporated in the lesson plan.

The comments made by moderators during the teaching practice exercise for school 2 include the following: The lesson plan was appropriate and realistic in the light of the lesson content and pupils ability/skills/interests, Introduction was clear on what the teacher wanted the pupils to learn, Lesson encouraged pupils to give their own hypotheses/prediction and helped to discuss how they differed from those held by others, Lesson facilitated growth of process skills such as observing, communication, manipulation, thinking and recording, Lesson was not suitably summarized and follow-up activities given, The teacher made effective use of the teaching and learning materials/media, Teacher was attentive to the needs of both

pupils, Teacher interjected rightly and called to attention inattentive pupils, Pupils were not encouraged to give their own hypotheses/prediction and helped to discuss how they differed from those held by others, Pupils were able to relate the result of activity to the content, Objectives Stated in terms of what learners are expected to achieve, Introduction is stimulating, Content is Geared to level of learners, Lack motivating both genders' participation and distribution of tasks during activities, Language used was enthusiastic, maintained eye contact and appropriate, Provision of activities and opportunities help develop process skill (Observation, manipulation, communication, thinking and recording), Guide learners to summarize main point of lesson through carefully structured questions, Encouraged individual participation in both group and class discussions, Lack of evidence of good use of instructional materials, The teacher is sympathetic to the needs and problems of the learners, Teacher handles disruptive behaviours appropriately, Teacher do not carry out a formative evaluation.

The comments made by moderators during the teaching practice exercise for school 3 include the following: Teaching procedure achievable within the stipulated time, Reference to previous lesson and everyday experience, Use of a variety of teaching strategies (Service learning, Moral dilemma, Role play, Field trip and Action learning), Language used was not enthusiastic, maintained eye contact and appropriate gestures, Lesson summary was sufficient time for learners to ask questions and seek clarification, Achievement of set objectives in terms of level of pupils' interest, The activities planned to arouse and sustain interest, Appropriate and orderly use of the chalkboard/Whiteboard, The teachers' did not exercise patience and is firm with the learners, Teacher handles disruptive behaviours appropriately, Teacher discusses and corrects pupils misconceptions, Teacher prepared appropriate and adequate materials for pupils use, Introduction was stimulating enough to arouse the interest and curiosity of the pupils, Lesson encouraged pupils to give their own observations/results in the activity and to discuss how they differed from those of others, The lesson assisted pupils to link content to what they come across in the society, Teachers do not invited questions from pupils, Teacher checked the accuracy, correctness, depth and appropriateness of the content through question and answer techniques, Teacher gave further guidance to pupils on lesson activity/activities, Most tasks were not in line with contents, Pupils were effectively encouraged to give their own observations/results in the practical work and to discuss how they differed from those of others.

The comments made by moderators during the teaching practice exercise for school 4 include the following: Teacher mastery of content, Achievement of set objectives in terms of Pupils' questions were not followed, Pupils meaningfully engaged in learning activities, The activities planned to arouse and sustain interest, Lesson facilitated growth of process skills such as observing, communication,

manipulation, thinking and recording, The lesson assisted pupils to link content to what they come across in the society, Teachers fail to check the accuracy, correctness, depth and appropriateness of the content through question and answer techniques, Teacher made appropriate adjustments in the conduct of the lesson.

The comments made by moderators during the teaching practice exercise for school 5 include the following: Teachers failed to handles disruptive behaviours appropriately, Teacher discusses and corrects pupils' misconceptions, Teacher prepared appropriate and adequate materials for pupils' use, Introduction was stimulating enough to arouse the interest and curiosity of the pupils, Teachers do not check the accuracy, correctness, depth and appropriateness of the content through question and answer techniques, Teacher do not give further guidance to pupils on lesson activity/activities.

In view of the above discussions and relevant information gathered the performance of pre-service teachers in science education course (ISC212) and moderators comments/report on teaching practice exercise, which shows that pre-service teachers performance is poor, it is imperative that educators should find other productive and effective strategies, like the Buzz Session Teaching Strategy.

Arivananthan (2015) defines buzz groups as a technique that is used to collect feedback on an issue or answer a question during a plenum. Arivananthan (2015) goes on with explaining how the buzz group method is put into practice. Two or three people discuss the issue or the question for a few minutes. They argue the given topic by sitting in their seats. In order to give energy to wide group meetings and events, the buzz groups supply a welcome change of pace for group members. Handoko (2017) states that the buzz group method is used in group works. Buzz strategy is alternative ways that can be used for getting effectiveness in teaching and learning integrated science. Buzz session as a teaching strategy is projected as a powerful tool for creating more realistic, experiential learning environments and helping schools and universities meet the emerging demands for teacher training (Bell & Kozlowski, 2007). Buzz groups as a method was first used and developed by Dr Donald Phillips on his students' at Michigan State University. His class was divided into six students' clusters to discuss for six minutes about a certain concept. Soon this method was known as Phillips 66 technique. Buzz group teaching, like other forms of discussion, benefits from significant teaching principle, "interaction". Small groups buzz together and everyone is expected to contribute to a thought-provoking topic and if they speak in private, they are likely speaking afterwards in Public to the whole class. Buzzes can also tune students to a subject matter and wind up their ideas. Buzz groups session requires more preparation time to achieve a certain task, answer questions and set context for the lecture. It may be informed of images, data, multiple answer or over-head projector transparency. Moderate time is required probably a couple of hours including

planning. The gain is the time spent in preparation and having less content material for the lecture. There is a major gain for the students learning and their confidence to converse with colleagues and lecturers

The mode of entry into higher institutions in Nigeria is categorized by the Joint and Matriculation board (JAMB) now known as Unified Tertiary and Matriculation Examination (UTME) for the undergraduate education admission as the Unified Tertiary and Matriculation (UTME) admissions, Direct Entry admissions and those who pass through remedial programme being run by individual university (Babatunde, Chukuemeka, , Abdulrahim, & Adai, (2019)). All these groups have varying academic experience which brings about the differences in their mode of entry in the institutions, which brings about the variations in the ordinary level qualification of the remedial programme students, ranging from no credit to four credit passes, which therefore means that the remedial students with three or four credit level passes at the ordinary level lacked experience of the higher institutions courses, the problem seem more complicated for the remedial students with no credit level at all. Hence this could reflect in their academic achievement when admitted into the higher institution's programs (Babatunde,A. E., Chukuemeka, E. J., Abdulrahim, M. & Adai, S. I. (2019)). For the admissions into this institution through direct entry programmes by using National Certificate in Education (NCE), National Diploma (ND) and Higher National Diploma (HND). One of the problems that is associated with the Direct entry Admissions is the Non-uniformity of the National Certificate in Education (NCE), National Diploma (ND) and Higher National Diploma (HND) holders, yet there are all admitted and considered as having the same experience during admission and for the placement in their different departments (Emaikwu, 2012). Furthermore, the National University Commission (NUC) in 1999 affirms that many colleges of education carryout their activities outside the National Commission for Colleges of Education (NCCE) guidelines, which there leads to variation in experiences among national certificate in education holders. Finally, since the direct entry candidates were certified internally to the extent that each college of education, polytechnic and college of Agriculture and so on, sets and conducts her own certificate examinations for her students; one could doubt the validity of such examinations (Babatunde, Chukuemeka, Abdulrahim, & Adai, 2019).

It is important to consider pre-service teachers' self-efficacy in technology integration for the reason that teacher' self-efficacy beliefs have been found to be a vital construct in the development of education in parts of the world (Chen, & Howard,2010). According to Bandura (2006), self-efficacy refers to one's belief of the one's capability to perform a specific task. As such, it is important to understand the factors that drive teachers' use of technology for instructional purposes. Yada, Bjorn, Savolainen, Kyttala, Aro & Savolainen (2021) have identified low self-

efficacy of pre-service teachers as a factor responsible for their performance deficiencies. In other words, if pre-service teachers' self-efficacy could be enhanced, their performance deficiencies would be remediated.

Based on the deficiencies stated above, this study would therefore investigate the Impact of Buzz session on Pre-Service Teachers' Lesson Planning skills in Integrated Science in South-Western Nigeria.

Statement of the Problem

Based on the deficiencies on the issues regarding the Pre-service lesson planning skills, it shows that pre-service teachers' low level of performance in Integrated Science is attributed to lack of adequate pedagogical content knowledge in which they ought to develop the necessary skills of lesson planning which has been an issue attracting the attention of researchers and science educators. Based on literatures reviewed on lesson planning skills. This is crucial for a subject as important as Integrated Science and effective delivery of Integrated Science lesson in Nigeria Colleges of Education. Several factors have been adduced to be responsible for this trend. These include the instructional strategy used in teaching the subject at the NCE level which does not make a good level on the part of the pre-service teachers thereby affecting their learning planning skills. Based on the results from the teaching practice reviewed, it shows that the performance was poor which led to why this study was carried out. However, the impact of the subject is not being felt as expected due to its poor handling by the lecturers' who adopted teacher – centred strategies in teaching Integrated Science. Earlier scholars experimented with ineffective learner-centred and participatory strategies for teaching Integrated Science in Colleges of Education but these have not translated to significant improvement in Lesson planning skills of Pre-service teachers. Consequently, integrated science was taught using conventional lecture strategy, hence there is a need to introduce Buzz session strategy to teach Lesson planning skills to Pre-service teachers in Integrated Science taking note of self-efficacy of students and mode of entry into the colleges of Education. This study, therefore concerned on training of the pre-service teachers on Buzz session strategy of instruction and its impact on their lesson planning skills in Integrated Science.

Hypotheses

To guide the study three null hypotheses were formulated and were tested at 0.05 level of significance:

1. There is no significant difference in the mean lesson planning Skills scores between pre-service teachers taught Integrated Science lesson plan using Buzz Session and those taught using Conventional Strategy.

2. There is no significant difference between self efficacy scores of pre-service teachers taught Integrated Science lesson plan using Buzz Session and those taught using Conventional Strategy.
3. There is no significant difference between Mode of Entry (UTME and Pre-NCE) scores of pre-service teachers taught Integrated Science lesson plan using Buzz Session and those taught using Conventional Strategy.

Methodology

This study adopted the pretest –posttest, control quasi experimental research design. Nigeria is divided into six (6) geopolitical zones namely; South East Zone, South West Zone, South South Zone, North Central Zone, North East Zone and North West Zone. South West Zone was randomly selected and was used for the research study. South West Zone comprises of five (5) States. Five Colleges of Education were randomly selected from all Colleges of Education in South West Zone making use of table of random numbers one College of Education per State. The five Colleges of Education were randomly assigned to treatment group. Intact class of NCE II Integrated Science pre-service teachers was used for the study. Five (5) instruments were used for the study, they includes; Pre-service Teachers Lesson Planning Skill Scale (PTLPSS) $r = 0.88$, Pre-service Teachers Self- Efficacy Scale (PTSES) $r = 0.81$, Operational Guides for Buzz Session Teaching Strategy (OGBSTS) $r = 0.78$, Operational Guides for Convectional Teaching Strategy (OGCTS) $r = 0.79$ and Evaluation Sheet for Assessing Teachers Performance on the use of Packages for Buzz Session and Conventional Strategies. The experiment lasted for twelve (12) weeks, the procedure for the data collection was divided into three stages; Pre-treatment, Treatment and Post- treatment. The pre-treatment stage lasted for five (5) weeks, this involved the pilot testing the instruments, familiarization visit to the selected colleges of Education and taking permission from necessary authority as well as copies of the selected NCE II I time table. The training of the facilitators and administration of of pretest was also carried out at the pre-treatment stage. The treatment stage lasted for a period of six (6) weeks in the first semester. The buzz session strategy was administered to experimental group while the conventional strategy was used in the control group. The posttest stage lasted for a period of one (1) week in which the posttest instrument was administered for both experimental and control groups. The data collected were analysed using Analysis of Covariance (ACOVA)at 0.05 level of significant.

Results

1. **There is no significant difference in the mean lesson planning Skills scores between pre-service teachers taught Integrated Science lesson plan using Buzz Session and those taught using Conventional Strategy**

Table 1

Summary of Analysis of Covariance (ANCOVA) Showing the Main Effect of Treatment on Lesson Planning Skills in Integrated Science

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	77701.164 ^a	9	8633.463	140.39	.000	.830
Intercept		1	12306.92	7	.000	.436
Pre_lesson_skill	12306.926	1	6	266.84	.891	.000
Treatment	.866		.866	6		
Self-efficacy		1		.019	.000	.805
Mode of entry	65548.075	2	65548.07	5	.004	.023
	377.179	1	188.585	6	.170	.005
Error	87.262		87.262	8.178		
Total		348		1.892	.003	.026
Corrected Total	15911.386	358	248.248		.005	.030
	994121.00	357	45.722	9.236		
	0			5.383		
	93612.550					

a. R Squared = .830 (Adjusted R Squared = .824)

Table 1 shows that there was a significant main effect of treatment on pre-service teachers' lesson planning skills in Integrated Science ($F_{(1,348)}=710.626; P<0.05; \eta^2=0.81$). The effect size accounted for 81%, therefore, the null hypothesis 1 was rejected. In order to determine the magnitude of significant main effect across the treatment groups, the estimated marginal means of the treatment groups is presented in Table 2

Table 2

Showing the Estimated Marginal Means Score of Pre-service teachers' Lesson Planning Skills in Integrated Science across all Treatment Groups

Treatment	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Conventional Strategy	31.202 ^a	.688	29.849	32.555
Buzz Instructional Strategy	67.414 ^a	.666	66.105	68.723

Table 2 shows that pre-service teachers exposed to Buzz instructional strategy had higher mean score ($\bar{X} = 67.41$), followed by those in the conventional strategy group had the lower mean score ($\bar{X} = 31.20$). The significance of this is that those in Buzz instructional strategy performed better than those in the conventional strategy.

2. There is no significant main effect of self-efficacy on pre-service teachers' Lesson Planning Skills in Integrated Science

Table 1 shows that there is a significant main effect of self-efficacy on pre-service teachers' Lesson Planning Skills in Integrated Science ($F_{(1,348)} = 8.178; P < 0.05; \eta^2 = 0.023$). Therefore, hypothesis 2 was rejected. In order to know which category of the self-efficacy has the higher lesson planning skills, estimated marginal means was performed and its summary presented in table 3.

The table above shows that pre-service teachers with low self-efficacy had higher lesson skills mean score ($\bar{X} = 50.52$) than those with a high self-efficacy ($\bar{X} = 48.28$).

3. There is no significant main effect of mode of entry on Pre-service teachers' Lesson Planning Skills in Integrated Science

Table 3

Estimated Marginal Means Score of Pre-service teachers' Lesson Skills in Integrated Science across Self Efficacy

Self-efficacy	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
High	48.279	.556	47.187	49.372
Low	50.521	.552	49.434	51.607

Table 3 shows that there is no significant main effect of mode of entry on pre-service teachers' lesson planning skills in integrated science ($F_{(2,348)}=1.89; P>0.05; \eta^2=0.17$). Therefore, hypothesis 3 was not rejected

Discussion of Findings

Effect of Treatment on Pre-service Teachers' Lesson Planning Skills in Integrated Science

The result shows that there was a significant main effect of treatment on pre-service teachers' lesson planning skills in Integrated Science and the effect size accounted for 81%. The result is in agreement with Drost, & Levine, (2015) who asserted that lesson plan preparation contributes immensely towards teachers' instructional delivery and learning outcome. Moreover, Simon, Irtwange and Nancy. 2010 study on Exploring pre-service teachers' perceptions of lesson planning in primary education stated that planning a lesson is a complex process. The relationship between the quality of a lesson plan and an effective teaching-learning process is widely acknowledged by researchers and educators. Therefore, developing pre-service teachers' planning skills is considered key in raising effective teachers. This research aims to understand pre-service teachers' perceptions of lesson and how they think their plans facilitate their creating an effective teaching-learning process. The sample involved primary pre-service teachers who enrolled in a Teaching Practice course at a faculty of education. 18 pre-service teachers participated in the research. Data was collected through semi-structured interviews. Content analysis was utilized to analyze the data. Two main categories emerged through the analysis; they have been named Difficulties of Planning a Lesson and Functions of Lesson Plans During the Teaching-Learning Process. The findings of the research revealed that primary pre-service teachers are aware of the importance of planning lessons; however, they found some difficulties during their planning. They claimed that during their visits to primary schools, they do not have enough time to get to know

students regarding their needs, characteristics, levels of learning, etc., and these issues influence their planning. Therefore, developing a lesson plan became challenging. The results suggest that opportunities should be created for pre-service teachers to get acquainted with students during their practice. Further investigation will also help us to understand more about how we can help our future teachers to develop skills to plan their lessons effectively.

Effect of Self-efficacy on Pre-service Teachers' Lesson Planning Skills in Integrated Science

The result reveals that there is a significant main effect of self-efficacy on pre-service teachers' Lesson Planning Skills in Integrated Science. The result of this finding is in agreement with the study of Hussain & Ali (2022) who confirmed that the construct of self-efficacy has a greater role to increase the teachers effectiveness and Bandura (2006) that investigated elementary pre-service teachers' self-efficacy for teaching mathematic stated that research has consistently shown that teacher efficacy is related to a variety of desirable student outcomes, thus, making teacher efficacy an important factor in high quality mathematics instruction. The purpose of this study was to determine elementary pre-service teachers' self-efficacy beliefs related to teaching mathematics. Forty-one participants from a single university responded to the Mathematics Teaching Efficacy Beliefs Instrument (MTEBI) after completing a constructivist-based elementary mathematics methods course prior to student teaching. The MTEBI is 21-item survey using a 5-point, forced choice Likert-like scale to provide an individual's perceptions of mathematics teaching efficacy beliefs on two subscales—Personal Mathematics Teaching Efficacy Belief (PMTE) and Mathematics Teaching Outcome Expectancy (MTOE). Responses on the PMTE subscale (Mean = 51.08, SD=5.171) indicate that the respondents' personal mathematics teach efficacy is positive. Participants' responses (Mean = 29.32, SD = 3.29) on the MTOE subscale indicate positive expectations of students' mathematics learning. Attending to pre-service teacher efficacy is worthy of examination. Teacher preparation programs must identify opportunities to positively impact mathematics teaching efficacy of pre-service teachers.

Conclusion

The study determined the effect of Buzz strategy on lesson planning skills of pre-service teachers in integrated science. Over the years pre-service teachers found lesson plan writing difficult and felt frighten when facing students during micro-teaching and teaching practice exercise. This study found that if the strategy was employed in teaching pre-service teachers, significant improvement will occur in their lesson planning skills which will invariably help to improve the performance of pre-service teachers in micro-teaching and teaching practice exercise.

Implications of Findings

The study determine the effect of Buzz session and instructional strategy as the determinants of pre-service teachers' lesson planning skills of in integrated science in Southwest, Nigeria. The findings of this study have implications for lecturers in college of education to employ the innovative strategy in teaching science education courses to pre-service teachers in order to acquire pre-requisite skills relevant in writing lesson plan note to students. Based on these findings, necessary materials and apparatus should be provided for the pre-service teachers to use in the course of writing of lesson. Government, policy maker and supervisors should provide their own quota towards education in order to achieve the aims and objectives of education as stated in the National Policy of education. The colleges of education would be able to produce qualified and well baked teachers into the society.

Contribution to Knowledge

The study has contributed to the body of existing knowledge in the following ways:

- 1.It is evident that, it is possible to use Buzz Session Strategy as alternative method of instruction at the college level since the strategy proved to be effective.
- 2.Buzz Session produced a better level of performance in integrated science than the traditional method that is often used.
- 3.Buzz Session enhanced pre-service teachers' lesson planning in integrated science.

Recommendations

Based on the summarized findings above, and the researchers' experience in the course of this study, the following recommendations are considered to be germane.

1. Lecturers should be discouraged from using teacher/facilitator centered instructional strategies in training pre-service teachers but be encouraged to employ learner-centered instructional strategies which are activity based, such as Buzz Session strategy. The use of innovative strategy that are activity base will promote high level learning performance as well as enabling the pre-service teachers to acquire necessary Lesson planning skills during training.
2. Facilities should be provided for the retraining of teachers in the use of innovative techniques in science instruction through conferences, seminars and workshops.

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