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EFFECTS OF APPLIED SCHOLASTICS' STUDY TECHNOLOGY (APSST) ON CLASSROOM PRACTICES AND ACADEMIC ACHIEVEMENT OF SENIOR SECONDARY ONE STUDENTS OF SOLID FOUNDATION ACADEMY, PANKSHIN, PLATEAU STATE, NIGERIA

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ABSTRACT

The study investigated the effects of Applied Scholastics' Study Technology (APSST) on classroom practices - namely: Lesson preparation; lesson delivery; sustenance of students' interest; and handling of barriers to study - and academic achievement of Junior Secondary School (JSS) One students of Solid Foundation Academy, Pankshin, Plateau State, Nigeria. The quasi-experimental design was adopted for the study. The sample consisted of an intact group of 30 students and 4 teachers subjected to pre and post interventions classroom observations and an analysis of students' terminal academic results. The instrument used for the study were: Lesson Delivery and Classroom Observation Schedule (LDCOS) and students' terminal academic results. Data collected were analysed using mean, standard deviation and t-test. The mean and standard deviation rate indicators of the effect of APSST on improvement of teachers on the classroom practices indices measured maintained a positive progression across board after exposure and deployment APSST in the classroom. Also, tested hypothesis proved significant improvements in all the classroom practices indices. Furthermore, result revealed an improvement in students' academic achievement based on the obtained mean in all the subject areas studied. Similarly, there were significant impact of APSST on students' achievement in English language, Mathematics and Physics with exception of Civic Education. Based on the



remarkable results noticed of the effect of APSST in teaching and learning within the short period of the study, it is concluded that deployment of APSST in education is vital in achieving productive learning experience.

KEYWORDS: Applied Scholastics, Study Technology, Classroom Practices, Academic Achievement.

INTRODUCTION

In the last twenty years, the Nigeria education system has depreciated massively, such that students are no longer engaged as they find classes boring and become somehow inattentive, leading to a high rate of drop out and increased illiteracy and lack of basic life skills (Familoni, 2015). Not only that the learning environment has suffered terribly, most of the school leavers, as a result of poor education, cannot find jobs leading to mass unemployment and illiteracy.

Often the school system encourages students to accumulate data in their minds. This is thought to be a measure of learning. This approach is mostly used so that they can take examinations and get passing grades. There is the erroneous assumption that ability to regurgitate crammed information automatically translates to learning. The result of this mental exercise may be that the examination scores are good, however the student's memorization of data is not the same thing as being able to think with the data, use it to solve a problem or imagine how something could or could not be this or that way. Thus, so much memorized information become lost to a student as soon as they get a course completion, it has no relative use to them as its value in life was never evaluated.

In order to address this menace productively, there is the need to interrogate the school learning system to recognize and confront the fundamental component of the business of the school. This fundamental is 'study' – the ability to learn. The Nigeria state, in order to halt the glaring, disconnect between its education process and survival, must of necessity rejig its education system; its study process and consequently its learning process. For effective learning to take place the teacher who is the facilitator of learning must be mindful and equipped with the following skills: effectiveness in lesson preparatory stages to produce an activity-based classroom environment; ability to sustain students' interest in undertaking learning tasks; and ability to identify basic barriers to study confronting individual student and how to remedy them. Essentially, a rewarding lesson is such that guarantees learners productive engagement and capable of sustaining students' interest as against their being passive recipients of knowledge.

As a response to the above problem in Nigeria education system, the then Education Trust Fund (ETF), now, the Tertiary Education Trust Fund (TETFund), a government education commission, took a bold



step to introduce into Nigeria education system an innovative teaching and learning approach known as the Applied Scholastics' Study Technology (APSST) in 2006. This was done by the training of a number of academics across the three tiers of tertiary education in the six geopolitical zones of Nigeria. These scholars were expected to train many more teachers in the school system to utilise this pragmatic methodology. Federal College of Education, Pankshin, Plateau State, Nigeria hosts one of the viable centres where the APSST is being propagated through the training of thousands of teachers and would-be teachers in the Nigeria education system.

The APSST is a methodology of teaching and learning that was developed by a 20th century American educationist, L. Ron Hubbard. It is a Technology of how to study and learn in such a way that learners do not only memorise facts in disguise of learning but actually understand and can apply what is learned. In order words, APSST consists of tools and strategies which teachers and students can use to improve their teaching and learning capabilities (Applied Scholastics, 2005).

This research aimed to assess empirically the effects of the APSST in enhancing teaching and learning in the school system using Solid Foundation Academy, Pankshin as a case study. It set to, in specific terms, test the effects of APSST innovative teaching and learning approach on improving classroom practices and subsequently students' academic achievement.

Research Problem:

The system of education in Nigeria over the years suffered from gradual decay. Learning in our schools currently does not take cognizance of individual students' learning process. The resultant problems include: Schooling reduced to passing examinations, characterised by giving instruction to the students and waiting for examination or tests in continuous assessment to determine failure or success of learning. Consequently, every student is then skewed into seeing examination as the basis for schooling, resulting in high number of unemployable graduates; and so increasing unemployment rate and examination malpractices and other wider social ills.

In a foreword to ITF and UNIDO (2016), President Muhammadu Buhari, observed that the absence of matching skills with industry need in Nigeria has heightened the unemployment rate, especially among the youths. Nigerians are reported as lacking in basic skills required to push forward the development of the country. Whereas unemployment has been on the increase, graduates are stated to be either unskilled or unemployable. Odewumi (2020, P. 94) talks of a question that agitates the mind: 'What skills did the thousands of colleges and university graduates roaming the streets of Nigeria acquire out of their educational experiences that can engender in them a sustainable growth and development?' There is no contestation regarding the fact that there is a solemn need to rejig and reinvigorate our educational processes, the study process, and subsequently the learning process.



The study therefore set out to introduce into the educational process the innovative APSST that is capable of revolutionising the teaching and learning process in a way that addresses students as individual learners and can produce students who not only pass through the cycle of schooling but can apply their learning in true life situation – Applied Scholastics; ‘schooling and education put to practical use’ (Applied Scholastics International, 2007: 4).

Purpose of the Study:

The purpose of this research was to examine the effects of the APSST for effective teaching and learning. The following specific objectives were to be achieved by the end of the research:

- i. To determine the level of improvement of teachers in classroom practices in terms of lesson preparation, lesson delivery, sustaining students’ interest in learning and handling barriers to learning after being exposed to APSST in an activity-based classroom environment;
- ii. To determine the effect of the application of APSST on students’ academic achievement in four subject areas considered.

Research Questions

The following questions were raised to guide the course of the research:

- i. What is the level of improvement of teachers in classroom practices in terms of lesson preparation, lesson delivery, sustaining students’ interest in learning and handling of barriers to learning in an activity-based classroom environment?
- ii. What is the effect of application of APSST on students’ academic achievement before and after intervention in four subject areas under consideration?

Research Hypotheses

- i. There is no significant improvement of teachers in classroom practices after being exposed to APSST.
- ii. APSST has no significant impact on the students’ academic achievement.

THEORETICAL FRAMEWORK

The theoretical framework of Technological Pedagogical Content Knowledge (TPACK) by Mishra and Koehler (2006) served as the theoretical underpinning for this research. TPACK is a framework that seeks to understand and describe the kinds of knowledge needed by a teacher for effective pedagogical practice in a technology-enhanced learning environment. Mishra and Koehler proposed that addressing content knowledge, pedagogical knowledge, and technological knowledge concurrently provides a framework for technology integration in the curriculum (Wikipedia: 2021). This when achieved is expected to produce learning efficiency.



In APSST, we do not refer to the deployment of digital gadgets for study purposes; but we refer to a body of organized knowledge for practical purposes of teaching and learning situation-technology as the methods of application of an art or science; or the laws of a science, art, etc. (Applied Scholastics (2002)).

LITERATURE REVIEW

Each child in the classroom is unique in their own way and is confronted with different learning difficulties and barriers. Felder and Brent (2005: 57) underscore this by noting that “students have different levels of motivation, different attitudes about teaching and learning, and different responses to specific classroom environments and instructional practices”. The more thoroughly teachers understand the differences, the better chance they have of meeting the diverse learning needs of all their students. Currently, instructional procedure in schools can best be described as a one-size-fits-all approach. One big reason learning crisis persists is that many educational systems across the developing world have little information on who is learning and who is not (The World Bank, Jan., 2019). Being in school is not the same as learning. So, it then becomes expedient for teachers to device an on-the-spot evaluation of learning progress by individuals through a definitively inculcated know-how.

L. Ron Hubbard became aware of the absence of any systematic research and methodology on the subject of study, how people learn and the difficulties they encounter in the process (APS, 2003). Through his intensive research, fundamentals underlying all forms of learning were isolated. With the interactive learning strategies and tools, students are aided to avoid or correct learning problems and, as a result, become self-regulated, independent, and life-long learners. The APSST as a new teaching methodology hopes to improve the ability of a student to learn by examining the subjective reactions of the students to the subject and relaying the data to a person, which they can receive and understand in such a way that they will be able to use the data (APS, 2005a). The principal aim, therefore, is to get the students there individually. The APSST sees the problem of education as not merely placing data at the recall of students but getting information into a student’s head, make the information available to the mind and teach the student to derive from that information the future information they need to tackle life challenges (APS, 2005b).

This pragmatic teaching technique promotes understanding of concepts, ideas, and processes which enable learners to apply or use acquired knowledge or skills to solve real life problems (Ahmed, 2009). Further, Ahmed (2020:149) highlights the following as the benefits of using APSST:

- i. It is basically learners centred. They are actively involved doing something meaningful to improve their knowledge and skills. The teacher only facilitates learning.



- ii. It equips learners with functional knowledge and skills that could be used to tackle future challenges;
- iii. It promotes self-confidence and independent learning. It is result oriented.
- iv. It provides learners with the opportunity to holistically accomplish learning materials in which the three educational domains are simultaneously treated in single lesson thereby making teaching and learning more meaningful and purposeful.
- v. The technique ensures thorough understanding of learning materials and contents before proceeding to the next. It allows learners to progress at individual rate and pace.
- vi. Evaluation and scoring of students' performance is on continuous basis. These assessments cover all the activities the learner partakes in throughout the programme rather than in one single examination.
- vii. It reduces the rates of examination misconduct thereby enhancing quality and functional education.

In an earlier investigation of the veracity of the APSST in Ekiti State, Nigeria, Familoni (2015) undertook a study of the effect of Applied Scholastics' training for school teachers and reported a remarkable improved performance in the grades of the students whose teachers were exposed to the training intervention. In addition to the above, the post-intervention classroom observation also shows a remarkable behavioural change in the students whose teachers were exposed to the APSST above the control group as they were able to see a marked difference in their teachers' enthusiasm in their training.

The current research although shares striking similarities with efforts of Familoni (2015), it however differs significantly in the sense that the location of the study are not the same; and much more significantly in that: While Familoni (2015) undertook her studies across two different groups of learners and teachers, the current study will generate its conclusion over the same set of subjects comparing realistically their performances at both pre and post intervention periods. This in essence will make the findings much more reliable as the variable of individual differences in personality trait would have been controlled.

It is no doubt that successful teachers tend to be those who are able to use a range of teaching strategies and who use a range of interaction styles rather than a single, rigid approach (Hamacheck, 1969 in Familoni (2015)). The APSST is a packaged teaching and learning approach that serves as a compendium of series of educational approaches that are scattered across wide range of pedagogical underpinnings. This is consistent with the submission of Doyle (1986) that suggests that effective teachers adjust their teaching to fit the needs of different situations and the demands of different goals, topics, and methods. Also, student learning has been linked to variables such as: teacher clarity,



enthusiasm, task-oriented behaviour, variability of lesson approaches and student opportunity to learning criterion material. More to this is the teacher's abilities to structure materials, ask higher-order questions, use students' ideas and probe student's comments (Darling-Hammond, Wise and Pease, 1983; Brophy and Good, 1986). All these essential ingredients of effective learning are contained in one package - the APSST, as ingrained in different components such as: cutting the right gradients; developing a checksheet; preparing the lesson checklist etc.

Admittedly, many educators have identified the need for teachers to use varied teaching strategies for effective learning in the classroom. This is contained in the literature as far back as Hamacheck (1969) as cited in Familoni (2015) above. However, as important as this fact is, the choice of varying teaching strategies has been left at the discretion of each teacher whose orientation, drive, competence, and versatility differ tremendously. This justifies the need for a workable technology of teaching and learning such as the Study Technology which in actual sense is a compendium of varying strategies in a pack that addresses how learning could be better conducted to achieve effective results at all times.

METHODOLOGY

The study was targeted at 30 JSS1 students and 4 teachers of English, Mathematics, Physics and Civic Education of Solid Foundation Academy, Pankshin, Plateau State, Nigeria in 2021/2022 session. The design was quasi experimental approach where which the teachers and students were exposed to the APSST at appropriate stages through trained research assistants who were already exposed to the APSST. Quasi experimental approach is a type of research design that attempts to establish a cause-and-effect relationship without randomly assigning the groups (<https://www.scribbr.com/methodology/quasi-experimental-design/>). This was considered useful for this research because, the study assessed a cause-and-effect relationship between APSST and effective learning, it was unethical to subject the students in the same school to two different types of treatments, thus putting a group at an advantage over the other. In this vein, the same subject (i.e. JSS1 students) and their teachers were observed prior to the intervention i.e. the training period and another observation after the training period. Both the pre-intervention and post-intervention class observation results were then compared to draw up conclusion on the cause-and-effect analysis. Students' terminal grades at pre-intervention and post intervention terms were also compared for the same purpose.

The research spanned through the three terms in 2021/2022 session. The first term was used for pre-intervention observation of lesson delivery and other classroom practices. The second term was used for intervention trainings in APSST and preparation of Applied Scholastics' material called the 'checksheet' for the third term topics in the target subjects' areas of English, Mathematics, Physics and Civic Education. The checksheet is an Applied Scholastics teaching and learning tool that contains a list of materials, often divided into sections, that give the theory and practical steps which, when



completed, give one study completion (Applied Scholastics, 2008). Each teacher developed lesson material on each topic meant for the lessons intended for delivery in the third term with the Applied Scholastics methodology in full operation.

The third term was used for lesson delivery using the APSST methodology and post intervention lesson and classroom observation. At the end of the third term a comparison was done between the classroom observation results of the first term and the third term. Also, students' grades in the first term examinations and third term examinations were also compared to generate conclusion on the effects of the APSST on students' achievement. In essence, the first term constituted the pre-intervention term, while the third term constituted the post-intervention term. The second term served as the intervention or transition period.

Research Instruments

In line with the research procedure highlighted above, two instruments were deployed in this research, which were: Lesson Delivery and Classroom Practices Observation Schedule and the Students Terminal Examination Results. The reliability of the Lesson Delivery and Classroom Observation Schedule developed on 5 - Point rating scale was measured using Cronbach's alpha tests to determine if multiple – question Likert scale surveys are reliable. The calculated coefficient is .985 which suggests a very strong reliability for the model to consistently achieve what it was designed to measure. Hence, the data for the study was analysed using descriptive and inferential statistics. The descriptive specifically, mean, standard deviation and chart were used to provide answer to the research questions, while inferential statistics specifically t-test was used to test the formulated hypothesis at the 0.05 level of significance.

RESULTS AND DISCUSSION

Research question one: What is the level of improvement of teachers' classroom practices after being exposed to APSST in a way that can facilitate an activity-based classroom environment?

Table 1: The mean of the effect of APSST on the teachers’ improvement level on classroom practices

classroom practices	English lang		Civic Edu		Mathematics		Physics	
	Before	Afte r	Befor e	Afte r	Befor e	Afte r	Befor e	Afte r
Lesson preparation	2.24	4.05	1.98	4.46	2.67	4.08	2.18	4.11
Lesson delivery	1.88	4.30	2.83	4.25	2.88	4.25	2.13	4.42
Sustaining students’ interest	3.42	4.04	1.85	4.33	2.89	4.22	2.83	4.22
Handling study barriers	3.28	3.97	2.07	4.02	2.78	4.02	2.62	4.23
Overall Mean	2.70	4.09	2.18	4.27	2.80	4.14	2.44	4.24

The table presents the mean improvement scores obtained of teachers on classroom practices before and after exposure to APSST for each of the four subject areas that are used in the study. It can be observed that the mean values for the after-exposure cases are comparatively higher than the corresponding before exposure cases in all the subject areas. This implies that the effectual deployment of the fundamentals of the APSST in learning tasks improves the teacher’s classroom practices ability effectively. The result indicates the extent of APSST on teacher overall improvement in classroom practices and the specific improvement dynamics. The adequacy and clarity in lesson preparation, lesson delivery, sustaining learners’ interest and handling of barriers to learning were effectively improved after the intervention using APSST. This was also presented in the chart below:

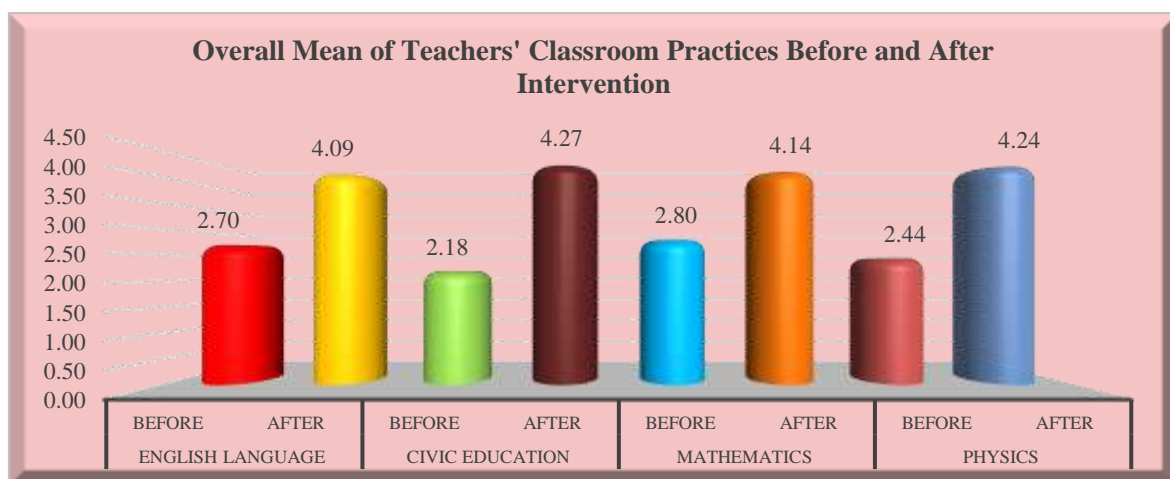


Figure showing the teachers classroom practice before and after APSST intervention

Research question two: What is the effect of application of APSST on students’ academic

achievement?

Table 2: The mean and standard deviation rate indicators of the effect of APSST on students’ academic achievement in subject areas

Subject areas	Student Performance	N	Mean	Std. Dev	Mean diff
English Lang.	Before	21	58.52	10.04	
	After	20	67.55	9.00	9.03
Mathematics	Before	20	43.70	15.62	
	After	21	58.19	15.93	14.49
Physics	Before	7	48.43	16.38	
	After	7	63.86	18.54	15.43
Civic Edu.	Before	16	63.00	13.06	
	After	16	69.56	10.44	6.56

The table presents the mean and the standard deviation on the impact of APSST on students’ academic performance. The result revealed higher mean in the performance of the students after the intervention across all the subject areas under consideration. The mean improvement indicates effect of APSST on students’ academic performance. The positive difference between the means and standard deviations of the before and after teachers’ exposures to the fundamentals of APSST in favour of the latter is a convincing indicator that the effectual deployment of the technology in classrooms and, by extension any teaching and/or mentoring programmes, would revolutionise the academic/vocational experiences of learners/apprentices. This, therefore, presents an opportunity for the revitalisation of the ailing education sector across societies and should be adopted and implemented at all levels of both formal and non-formal teaching and learning formations. This was also presented in the chart.

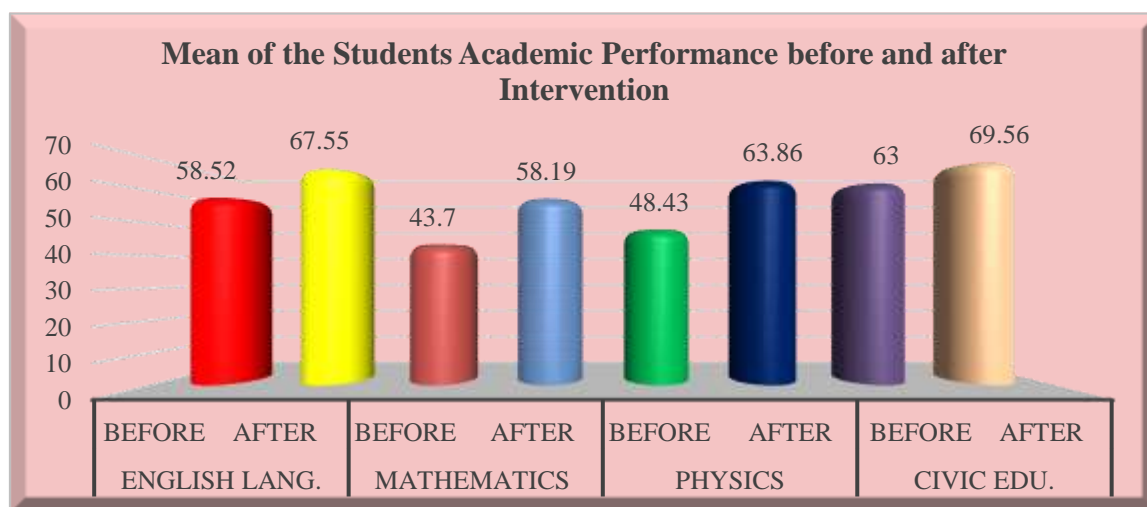


Figure showing improvement in students’ academic achievement before and after APSST intervention

Hypotheses testing

Hypothesis one: There is no significant improvement of teachers in classroom practices after being exposed to APSST.

Table 3: Result on the Significant Impact of APSST on Classroom Practices of the Teachers

		Me an	N	Std. Dev	Mea n diff	t	df	Sig. (2- tailed)	Decisi on
Lesson preparation	Befor e	2.27	4						
	After	4.18	4	.192	1.91	8.63	3	.003	Sig
lesson delivery	Befor e	2.43	4	.502					
	After	4.24	4	.159	1.81	7.52	3	.005	Sig
Sustaining students’ interest	Befor e	2.75	4	.654					
	After	4.20	4	.120	1.46	3.79	3	.032	Sig
handling study barriers	Befor e	2.69	4	.499					
	After	4.06	4	.116	1.37	5.08	3	.015	Sig

The table presents the significant impact of APSST on classroom practices of the teachers of the various subjects used in the study. This is tested with respect to the impact of APSST on the following lesson areas: lesson preparation; lesson delivery, sustaining students’ interest; and handling study barriers. The hypothesis was rejected since the p-values obtained for each area of the classroom practices was found to be less than the 0.05 significance level. Therefore, the result established a significant impact of APSST on teacher’s classroom practices in lesson preparatory, delivery, sustaining students’ interest and handling of barriers to study.

Hypothesis two: There is no significant impact of APSST on the students’ academic achievement.

Table 4: t-test Result on the Significant Impact of APSST on Students Achievement

Subject areas	Student Performance	N	Mean	Std. Dev	Mean diff	t	df	Sig. (p-values)	Decision
English Lang.	Before	21	58.52	10.04					
	After	20	67.55	9.00	9.03	2.957	19	.008	Sig
Mathematics	Before	20	43.70	15.62					
	After	21	58.19	15.93	14.49	2.939	19	.008	Sig
Physics	Before	7	48.43	16.38					
	After	7	63.86	18.54	15.43	3.352	6	.015	Sig
Civic Edu.	Before	16	63.00	13.06					
	After	16	69.56	10.44	6.56	-1.738	15	.103	Not sig

The table presents the Independent Sample t-test result on the significant impact of APSST on students’ achievement. The result revealed there were significant impact of APSST on students’ academic achievement in English Language, Mathematics and Physics with the exception of Civic Education. Furthermore, the result revealed an improvement in students’ achievement based on the obtained mean in all the subject areas considered in the study. This result agreed with the finding of Familoni (2015) who earlier reported a remarkable improved performance in the grades of the students whose teachers were exposed to training in APSST. She also reported improvement in enthusiasm in classroom delivery process. The isolated case of insignificant effect noticed in Civic Education will require further interrogation.

CONCLUSION

The effects of the Applied Scholastics’ Study Technology (APSST) on classroom practices and students’ achievement have proven continuously positive across all the dataset investigated in this study. It is therefore expedient to conclude that deployment of APSST in Nigerian education system is very vital in achieving functional and productive learning experience capable of driving the wheel of sustainable national development. Furthermore, it is pertinent to note that the significant positive changes recorded in teacher’s classroom performance and students’ academic achievement in this study occurred over an interval of one academic session, it is heart-warming to imagine the transformation that introduction of APSST is capable of effecting over a longer period of usage with



the teachers and students perfecting their art on the innovation over a prolonged usage in time.

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