

ASEI-PDSI As An Instructional Strategy For Effective Teaching And Learning Of Mathematics At Basic Educational Level

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Abstract: *The study explores the stages involved in writing a model lesson plan based on ASEI – PDSI instructional strategy. ASEI – PDSI stands for Activity, Students – centred approach, Experiment, Improvise, Plan, Do, See and Improve. ASEI – PDSI approach is both student – based and Activity – based and relatively new in Nigeria. In this work, a model lesson plan of ASEI – PDSI Instructional approach is presented. The topic for the lesson plan is ALGEBRA and sub-topic; removing brackets involving one variable. The rationale for choosing the topic is because most teachers teach it without using Instructional materials. The instructional materials, learning activities and learning points were well specified. It was then recommended that teachers should be encouraged to imbibe the principles of ASEI – PDSI in the teaching/learning of Mathematics at Basic educational level in order to improve the learning of instruction.*

I. INTRODUCTION

The quality of life in any society depends significantly on its standard of education (Onwuka, 2009) and the standard of education revolves round the quality of mathematics education (Moseri, Onwuka, Iweka, 2010). Mathematics education therefore is an index of quality of the life and development of a nation. It then behooves on all stakeholders in the educational industry to ensure that mathematics is well taught and learnt in the school system especially at the Basic level.

Teachers play a vital role in ensuring success and quality of education. Unfortunately, in Nigeria, mathematics teaching has been teacher-centred approach. This probably may account for the students' poor achievement (Ukeje, 1997). In a bid to find solution to the poor achievement students at the Basic in Mathematics and science, the Federal Ministry of Education (FME) felt there is need to regularly update teachers' skills and knowledge through In-Service Education Training (SMASE,2012). This led to the birth of SMASE Nigeria project; which uses ASEI-PDSI teaching approach. This paper is the concurrence of the author with this approach.

SMASE is an acronym from the phrase Strengthening Mathematics and Science Education. In Nigeria, the headquarters is National Teachers Institute (NTI), Kaduna. The Federal Government of Nigeria (FGN) in 2006 reached an

agreement with Japan International Cooperation Agency (JICA) to establish SMASE in Nigeria (SMASE, 2012). The choice of JICA was made because of their success stories recorded in some Africa countries in organizing and executing sustainable quality programmes for Mathematics and science teachers. These countries include Malawi, Ghana, Kenya, South Africa, among others.

ASEI-PDSI is an acronym in which

- ✓ A -stands for Activity
- ✓ S- stands for Student-centred
- ✓ E -stands for Experiments
- ✓ I - stands for Improvisation
- ✓ P - stands for Plan
- ✓ D - stands for Do
- ✓ S - stands for See and
- ✓ I - stands for Improve

The principles calls for a shift in paradigm from traditional practice which is teacher-centred to that of pupils-centred and activity based as well as practically knowledge-bound. The teacher uses an ASEI lesson plan in order to enhance the quality of his/her teaching.

The features of an ASEI lesson are stipulated below:

- ✓ Activity – based teaching
- ✓ Student – focused learning
- ✓ Experiment/Research based approach

✓ Improvisation

SAMPLE OF ASEI LESSON PLAN

MATHEMATICS ASEI LESSON PLAN

Date: 14/08/2015.

Class: 6

Number of Students: 40

Duration: 35 minutes.

Topic: Algebra

Sub-topic: Removing brackets involving one variable

Rationale: In our daily life, we encounter situations where we buy the same type of items from different shops and put them together.

OBJECTIVES

- ✓ By the end of the lesson, the pupils should be able to;
- ✓ Remove the brackets of algebraic expressions involving one variable.
- ✓ Simplify algebraic expression

PRE-REQUISITE KNOWLEDGE AND SKILLS

- ✓ Addition, Subtraction and multiplication of variables
- ✓ Understanding the definition of a variable - understanding what is meant by bracket

MATERIALS: STRAWS, BOTTLE COVERS

	<ul style="list-style-type: none"> 3 straws. ✓ Ask each of them to take away 4 straws and count the number left. Ask the same pupils to take away 1 straw and count the number of straws left. ✓ Ask each group to count the total number of straws left in each group and compare their answers 		
BRIDGING AND CLASS EXX/ ASSESSMENT 8 MINS	Let pupils establish that, the operation used to solve the activities was multiplication.	Simplify the following: 4(2b) $2(3x + 4x)$ $8(5x - 3x)$ $4(4n + 3n + 7n)$ $2(3x + 4x)$ $15(4e - 3e + 2e + e)$	
CONCLUSION (5 MIN)	Review of main points. Assignment	Exercise 25 page 33 Questions 2,3,4and 10	

Table 1

II. CONCLUSION AND RECOMMENDATIONS

ASEI – PDSI is a relatively new teaching approach in Nigeria. Most teachers in the Basic level are not aware of this teaching approach. Some that are aware have refused to implement the principles. The joy accompanying the application of the principles in the teaching and learning of Mathematics cannot be over-emphasized. It enhances creativity, increases skills of improvisation of instructional materials and facilitate active participation on part of the teachers and students.

Nigeria teachers should therefore be encouraged to imbibe the principles of ASEI- PDSI approach and practice it in the classroom. When this is done, we can boast of improved performance of students in Mathematics especially at Basic level which can accelerate into technological growth.

REFERENCES

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STAGE/TIME	TEACHING/LEARNING ACTIVITIES	LEARNING POINTS	REMARKS
STEP 1 INTRODUCTION (5 MIN)	Recap of previous lesson. E.g. Simplify the following: 1. $18a-9a+2a-5a$ 2. $15y-10y-2y+6y$	Addition of like terms	
STEP 2 ACTIVITY 1 WHOLE CLASS (5 MINS)	Find out from pupils in each group how many of them like a particular type of fruits. Teacher captures response for each group and teacher guides pupils to understand practically that, $2y+2y+2y+2y=8y$	Linking real life situation with algebra The concept of repeated addition	
STEP 2 ACTIVITY 2 GROUP WORK (12 MIN)	<ul style="list-style-type: none"> ✓ Teacher gives 20 straws to each group. ✓ Ask 4 members of each group to pick 2 straws. ✓ Ask them to count the number of straws they picked. Let pupils compare their results ✓ Ask 3 members in each group to pick 2 straws and 3 straws in their left and right hands respectively. ✓ Ask pupils to count the number of straws in each group and compare the results ✓ Ask 5 members in each group to pick 4 straws each. ✓ Ask each of them to take away 2 straws and count the number of straws left ✓ Ask pupils to count the total number of straws in each group and compare their results ✓ Ask 2 members in each group to pick 5 straws and 	Removing brackets and simplifying Simplify the following: $4(2s)$ $3(2s+3s)$ $5(4s-2s)$ $2(5s+3s-4s-s)$	