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The Impact of Participatory and Expository Approaches on Learning of Agricultural Science in Senior Secondary Schools in Benue State

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ABSTRACT The study assessed the effectiveness of participatory and expository approaches in teaching agriculture to SSS III students. The study utilized pre-test and post-test experimental design, which involved the comparison of gains. Purposive stratified sampling was used to select a sample of 50 students from each of Padopads Harmony Secondary School (Student enrolment = 1, 021) and Government Secondary School (Student enrolment = 1, 125). Psycho- productive evaluation test items were used at the pre-test and post-test phases. The contents of the instrument were the same. The mean gain scores of the pre-test and post-test were further analysed using t-test statistics resulting to the findings that participatory approach was more effective than expository approach. The reason was that participatory approach was student-centred while expository approach was subject-centred. It was recommended that participatory approach should be used for both teaching and assessing agricultural science students for greater attainment of set down objectives.

INTRODUCTION

The life span of men is short; estimated at an average of 75 years by scientist with not more than 65 years of this classified as active years (Hamilton and Damna, 2003). This makes it necessary for men to spend part of their existence in imparting the knowledge and skills, both acquired and inherited, to incoming generations. Unless this is done valuable aspect of a people's history and culture could be lost such that new generations must start accumulating knowledge and skills from the scratch. This is why teaching is perhaps the oldest art and at every period in the history of a people, teaching has been a focus of attention.

Teaching and instruction are used interchangeably. It is an art of disseminating classified information to the recipients by experts in the teaching profession. Teaching encompasses various strategies. These include: expository approach, demonstration, experimental, discovery, inquiry-problem solving, participatory and host of others. Since teaching has no hard and rigid dimension, experts adopt variety of these approaches in the classroom as well as counseling in the semitrance.

The art of teaching has accrued result captioned learning. Learning leads to desirable changes in behaviour that occurred as a result of alcohol and drug do not constitute learning as behavioural change is temporal. This is why it becomes imperative to examine some approaches that are capable of inculcating saleable skills and knowledge to the recipients.

This text examined effectiveness of participatory and expository approaches to Senior secondary school students III.

Participatory Approach

Participation connotes people's involvement in decision-making process, in implementing programmes, involvement in programme evaluation and benefit sharing.

Participatory approach creates opportunity for students to cordially interact and generate hybridized ideas amongst one another. This interaction is done at various levels; ranging from passive, information giving, consultation, material incentive, functional to self mobilization. This makes it imperative for the class teacher to exhibit skills of professional teaching in achieving set down objectives at the end of the lesson.

In doing this, the teacher adopts functional participation, which allows students to participate by forming groups to meet predetermined objectives related to the chosen topic or lesson.

On the other hand, the interactive participation assist students to jointly analyze issues leading to action plan and formation of new concepts, projects and strengthening of existing ones. It involves multidisciplinary methodologies that seek multiple perspectives and make use of systemic and structured learning process. The self-mobilized participation occurs when students participate by taking initiative independently of their teachers. In this case, they only contact their teachers for resources and technical advice to achieve their set down objectives. However, the students decide how these resources are utilized.

It becomes apparent that the term "participation" demands critical qualification into various typologies to practically identify suitable type that directly fits into usage at a particular lesson. Equally, it becomes imperative to know that functional, interactive and self-mobilized participatory strategies allow total involvement of students from the planning to the implementation stages of learning experiences. It allows students full participation resulting to students being active instead of passive. Participatory approach therefore, sermonizes students centre instead of subject centre. The teacher ekes out information from the students through the results of the class room assignments and real participation in manipulative work that requires knowledge and skills in the classroom.

Expository Approach

Expository approach is the oldest approach employed in our schools for teaching both Science and Arts subjects (Agbulu, 2002). It involves verbal presentation of ideas, concepts, principles, generalization and facts. The objective is to impart or inculcate information to the students. The teacher does much of the activity in form of talking while, the pupils are either passive or slightly involved.

Expository approach habours two basic skills which every teacher must endeavour to explore for effective dissemination of information to the students. These skills include: clear and good command of language and ability to write clearly and boldly on the chalk-board. In expository approach, the teacher knows every thing and that the learner is almost blank. It is the teacher's role to impart his knowledge merely by telling his students. The expository approach derives from the commonly held notion that in the teacher – student relationships, the teacher, as an embodiment of knowledge, gives out what he knows to his students. The teacher talks with the students. The teacher talks with the students by means of reading his notes. Teachers make practically all the decisions; the mode of instruction; organization of learning experiences and materials; sequence; pacing and style of information dissemination. Teacher is therefore, the expositor and actor, while students are listeners, speaking only when called upon to answer questions, ask questions or demonstrate a procedure.

The relevance of this study borders on the fact that education is the most important instrument for change? Especially in a fast changing world, the educational process needs to be put under constant focus so as to make it responsive to emerging challenges.

This position triggered the zeal of the researcher to practically examine curriculum concept in relation to teaching and learning styles which directly and indirectly determine quality of educational outcome for the geometric development in all ramifications. A well taught student is an asset to himself and to the entire society through acquisition of Saleable skills and knowledge in tune with occupational placement in the world of work. This is the nucleus of this study.

Effective teaching and learning can only be ascertained through proper assessment. Assessment according to hornby, (2001) means appraise; fix or value of a speech at its true worth. It could be inferred from this definition that assessment deals with testing to know whether learning experiences are perfectly taught to students. It is carried out through formative and summative phases. Formatively, students are asked questions when the lesson is on-going. This acts as check and balance in correcting the teaching learning style and repositioning the teacher at the course of delivering lectures/ tutorials in the classroom. The summative evaluation comes up at the end of the term (semester), JSSCE, WASEC, JAMB and other examinations that are terminals. Responses of students to several questions generated either in writing or verbal, determine the levels of performance vi-a-vis quality of educational attainment.

Therefore, the broad purpose of the study is to examine the impact of assessment on instruction

and learning of agricultural science in senior secondary schools and to previously decide the more effective approach to teaching practical agriculture to senior secondary school students who have chosen agricultural science as an examinable subject in the WASEC. Specifically, the objectives of the study are to determine:

1. The relative effectiveness of participatory and expository approaches in the inculcation of interest in students of agriculture;
2. The relative effectiveness of participatory and expository approaches in the inculcation of knowledge and practical skills in agricultural science students;

Research Questions: Based on the specific objectives, the following questions were asked and answered.

1. How effective is participatory and expository approaches in inculcating interest in students of agriculture?
2. How effective is participatory and expository approaches in inculcating knowledge and skills in students of agriculture?

Hypotheses: To guide this study, the following hypothesis were stated and tested:

1. There is no significant difference between the effectiveness of participatory and expository approaches on students' retention of factual knowledge.

MATERIALS AND METHODS

This study is experimental research. It involves teaching the senior secondary school students using the two approaches – participatory and expository. The tests comprised of a pre-test and post test. Comparison of results from the pre-test and the post-test for the two approaches is expected to provide information on the relative effectiveness of the two approaches.

The researcher tested the hypothesis and reached valid conclusions about the relationship between the independent and dependent variables.

The paralled or equivalent group design was used to compare the relative effects of treatment and control groups purposely chosen. Padopads Harmony Secondary School, Makurdi was used for the treatment, while Government Secondary School, Makurdi was used for control. This design involved the administration of pre-test and post-test on the treatment and control classes. Aptitude capability of the sampled students was carried out to ascertain their entry point academically before treatment. Both the pre-test and post-test questionnaire contained the same items.

The population of Senior secondary School Students in Padopads Harmony Secondary School is about 1,021 while in Government Secondary School, the population is about 1,125. Out of this population, fifty (50) students each were sampled using purposive stratified technique; resulting to one hundred (100) students sampled for the study.

The research instrument that was used in collecting data for this study include: instructional package (class notes) and tests for cognitive domain, manipulative-practical acquisition and entry behaviour test. The topics, chosen include: fish and fisheries in Nigeria, farm machinery, forest and forestry and role of science and technology in agricultural development. Based on this topic, the pre-test and post-test items were multiple choice questions that are practically-oriented.

Data was analyzed, using mean (x), standard deviation (SD) and t-test statistics.

Table 1: Comparison of participatory and expository approaches in inculcating interest in Students of agriculture.

Treatment Group
Gain/losses in interesting from the use of the participatory approach.

S. No.	*Occupations*	*Post-test frequency*	*Pre-test frequency*	*Difference frequency*	*Remake frequency*
1	Agriculture	15	8	7	Gain
2	Medicine	6	4	2	Gain
3	Service occupation	5	5	0	-
4	Bench work occupation	4	10	-5	Loss
5	Clerical and Sales occupation	8	18	-10	Loss
6	Professional and technical occupation	5	2	3	Gain
7	Processing occupations	3	1	2	Gain
8	Machine trade occupation	4	2	2	Gain
	Total	50	50	0	

RESULTS AND DISCUSSIONS

Table 1 shows that an additional 7 students chose agriculture as their occupations after instruction using participatory approach. This represents an increase over the initial number of students who chose Agriculture as their occupation. Based on this, the researcher

Table 2: Comparison of participatory and expository approaches in inculcating knowledge and skills in students of agriculture.

Padopads Harmony Secondary School, Makurdi Score Sheet (Treatment Group)

S. No	*Identification colours*	*Pre-test*	*Post-test*	*Gain-difference*
1	White	20	45	25
2	Black	14	28	14
3	Red	16	30	14
4	White	18	31	13
5	Black	13	25	12
6	Red	19	29	10
7	White	8	19	11
8	Black	4	19	15
9	Red	15	26	11
10	White	15	29	14
11	Black	21	30	9
12	Red	18	28	10
13	White	22	29	7
14	Black	10	20	10
15	Red	17	31	14
16	White	18	35	17
17	Black	14	38	24
18	Red	13	38	25
19	White	16	28	12
20	Black	18	33	12
21	Red	21	26	5
22	White	19	27	8
23	Black	21	31	10
24	Red	16	30	14
25	White	12	25	13
26	Black	10	29	19
27	Red	11	23	12
28	White	3	19	16
29	Black	6	20	14
30	Red	10	31	21
31	White	20	38	18
32	Black	16	40	34
33	Red	13	39	26
34	White	14	36	22
35	Black	21	39	18
36	Red	9	18	9
37	White	8	19	11
38	Black	12	20	8
39	Red	10	28	18
40	White	23	29	6
41	Black	21	30	9
42	Red	9	18	9
43	White	13	21	8
44	Black	14	27	13
45	Red	16	31	25
46	White	17	38	21
47	Black	21	39	18
48	Red	22	30	8
49	White	9	20	11
50	Black	10	15	5

Government secondary school, Makurdi Control Group

S. No	*Identification colours*	*Pre-test*	*Post-test*	*Gain-difference*
1.	White	16	14	-2
2.	Black	18	16	-2
3.	Red	20	25	5
4.	White	13	14	1
5.	Black	12	16	4
6.	Red	10	12	2
7.	White	11	14	3
8.	Black	14	19	5
9.	Red	16	19	3
10.	White	21	23	2
11.	Black	16	24	8
12.	Red	18	20	2
13.	White	20	25	5
14.	Black	21	23	2
15.	Red	19	20	1
16.	White	16	18	2
17.	Black	17	18	1
18.	Red	18	20	2
19.	White	20	24	4
20.	Black	19	19	0
21.	Red	15	18	3
22.	White	16	18	2
23.	Black	20	21	1
24.	Red	18	20	2
25.	White	16	19	3
26.	Black	09	10	1
27.	Red	14	18	4
28.	White	20	20	0
29.	Black	23	21	-2
30.	Red	21	19	-2
31.	White	22	19	-3
32.	Black	16	17	1
33.	Red	17	18	1
34.	White	18	13	-5
35.	Black	20	19	-1
36.	Red	14	16	2
37.	White	13	15	2
38.	Black	15	14	-1
39.	Red	10	11	1
40.	White	16	18	2
41.	Black	17	17	0
42.	Red	20	21	1
43.	White	21	20	-1
44.	Black	23	24	1
45.	Red	17	18	1
46.	White	14	16	2
47.	Black	13	15	2
48.	Red	06	10	4
49.	White	07	18	11
50.	Black	21	20	-1

Table 3: t-Analysis of the comparison of gain ratio between participatory and expository approaches in learning.

Variable	*Treatment group*		*Control group*		*Df*	*t-ratio*	*t-cal*
	Mean	*SD*	*Mean*	*SD*			
Learning Method	14.22	6.23	1.38	1.99	98	2	12.73*

*t is significant at $p < 0.05$
SD – standard Deviation
Df – degree of freedom
t-cal – calculated value of t.

concluded that the participatory approach is capable of stimulating students' interest moderately. On the other hand, there is a loss in interest when expository approach is used for classroom instruction. This is noticed in the table of control group, where 15 students indicated interest during the pre-test as against 12 students during the post test phase. High rate of interest generated through participatory approach was as a result of its simplicity in collective participation and decisions. Students were allowed to make positive inputs during the classroom instruction. Instruction was student centred.

Table 2 reveal that the mean gainscores for group A which received instruction with the participatory approach was 14.22 while the mean for group B (expository approach) was 2.38. Thus the researcher concluded that students gained more knowledge and skills when instructed with the participatory approach than when instructed with the expository approach. Participatory approach is therefore, more effective than the expository approach in teaching factual agricultural knowledge and skills to SSSIII students.

Table 3 reveals that there is no significant difference between the two approaches in inculcating knowledge and skills to students of agriculture.

CONCLUSIONS

Based on the findings of the study, the following conclusions were made. The participatory approach is more effective than the expository approach in stimulating student's interest in agriculture. Knowledge and practical performance in skills are significantly inculcated in the students of agriculture using the participatory approach than the expository approach.

On the basis of the findings made and conclusion reached, the following recommendations were preferred.

1. Agricultural science teachers should adopt participatory approach in involving students at the course of teaching both in the classroom and on the land laboratory.
2. Students should be given free hands to choose courses, of their interest. This will assist them find suitable jobs at the end of their studentship.
3. Assessment should be carried out regularly so as to correct failures through marked scripts and representation of same topics in the classroom.

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