Effectiveness of Animated Instructional Resource for Learning Facilitation among Secondary School Student in Bauchi Nigeria

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Abstract

The study seek to reviel the importance of instructional visual in educational systems in Bauchi Nigeria. Instructional visual play very significant roles as medium of communication for learning. The research for this article was motivated by this understanding of the need. The study carried out in Nigeria in one of the most challenging state, Bauchi with low enrolment of students in school and in the study of sciences.Piloted atotal of 189 experimental and 189 of control despondence were studied. The studies focus on the experimental, to compare among the zones.The experimental outperformed the control group. However, location II was found to have the highest impact with a mean performance of 57.8572 follow by location III with a mean performance of 56.1746 and lastly a mean performance of 54.9208 for location I. In all the locations their means performance fall within 'C' grade which is a good profile of information assimilation by the respondents.

Introduction

The study of science subjects faces the challenges of low enrolment and poor performance of teachers and students, this failure rate is associated to non utilization of effective media for facilitating learning. Media refers to various means of communication e.g. television, radio, newspaper, magazine, etc. Media can be used for mass broadcasting and schools learning programmes. The focus of this article is a comparative study of AIR effectiveness among secondary schools students in Bauchi Nigeria.

Animation is discovered to be very important in the teaching process. If properly used, it provides a learning environment that will help learners to be more effective. This chapter also revealed that the application animation to teaching depends on the teachers' knowledge on the principles and practice guiding it's application, the characteristics of the learners and the objectives of the lesson. In highlighting the importance of animation in the instructional process, Steward (2002) asserted that the role of animation in teaching and learning is rapidly becoming one of the most important and widely discussed issues in contemporary educational circle. Okon (2008) reporting on the state of animation in teaching-learning activities in schools indicated the unfortunate situation where it was seen simply as medium of entertainment. He further noted that the importance of animation in educational process is quite evident; animation holds great promise in the instructional process and has dominated the instructional practices in recent times.

Today several scholars and students attests to the fact that Animation in teaching and in learning combat boredom, having the capability of activating the senses of sight, hearing, and in the case of concrete objects, the sense of touch. Animation provides learners higher interactive activities establishing concrete basis for conceptual thinking where more than a single sense of perception is experienced. According   to Frank (2006) the greater   the number of sense involved in perception (learning situation) the quicker and the better the learning and the longer the retention.

If animation is properly used, it can bring into the class inaccessible   processes, materials, events, objects, changes in time, speed and space. Interest, as often developed by animation concept, is not an end in itself, but the process of animation operates as a springboard for launching the learners into a wide variety of learning experiences. They provide basis for conceptual thinking enhancing clarity of communication and increasing the speed of comprehension. Besides increasing the teachers' efficiency, animation concept and practice appeal to

any age and ability group. The simultaneous use of audio, text, multi-coloured images, graphics, motions, light, and other special effects provide ample and exceptional opportunities for the learners (students) to develop capacity for high quality learning and increase their ability to be highly innovative in thinking and in practice.

Animation: for effective teaching and learning

For effective teaching and learning using animation, careful planning is a must. Midleton (2009) specifically referred to the principles for the use of animation in education as a systematic approach to instruction, while Okon (2010) refers to it as "ASSURE" model; an acronym intended to assure effective teaching and learning process. In the ASSURE model the letter A stands for analysis of the teachers' and learners' characteristics, while the next letter S stands for stating the instructional objectives. The next letter S (the seconds "S") stands for selecting instructional methods and technology, and "U" for utilization of instructional methods and technology. The letter "R" stands for requiring teachers' and learners' participation, and "E" for evaluation and revision of instructional process.

The system approach on the other hands is an attempt to co-ordinate all aspects of problem towards specific objectives. This can be achieved through the use of all available learning resources such as audio-visual technology that would assist in achieving desirable objective by the most efficient means possible.

Some major factor to be considered in the use of animation in teaching include the type of learning and learning materials, the type of learners, the teachers' personal styles of teaching.

Principles Guiding the Use of Animation in Teaching and Learning

For effective instruction and output, careful planning is necessary. The use of animation in teaching and learning is no exception. Gagne (1985), Kumar (2008), Sampath; et al (2006) have stressed that, the theories of teaching and learning that are translated into general principles are guided by the socio-psychological principles which cover the following:

(a) The learning environment
(b) Students motivation
(c) Reinforcement pattern
(d) Feedback

Sampath, et al (2006) specifically, referred to the principles for the use of instructional resources as "system approach" to instruction, while Heinichetal (2002) had referred to it as "ASSURE" model. In the ASSURE model "A" stands for the analysis of the students' or learners' characteristic, "S" for stating instructional objectives, the following (next) S for the selection of instructional method and materials to be used and U for utilization method and materials, R represents requiring their participation and E, the evaluation and review of the instructional process.

This system approach (the model) is an attempt to co-ordinate all aspects of a problem towards specific objectives. This can be actualized and achieved through available resources such as animated instructional materials. These will assist in achieving desirable learning objectives by the most efficient means available. The key factors in the system approach using animation are **PLAN, IMPLEMENT** and **EVALUATE**. The success or failure in considering these three factors depends on the teachers, for he or she must select and arrange the materials and activities and provide guidance to the students.

While using animated instructional material the teacher must look out for, and identify existing gaps between current and desired levels of skills and knowledge and then select instructional methods and strategies to meet the need. Michael (2008) agrees with Paul (2006) that a successful use of animation in teaching-learning situation can not take place without a clear knowledge of the instructional method and materials and adequate knowledge of he learners and learning environment. These will adequately address what, when, where, why and how the learning activities might best be accomplished.

Barriers to the use of animation concepts and practices in teaching and learning situations are varied and numerous. As clearly stated by Ema (2010) these barriers fall into two main categories, and they are: Extrinsic and Intrinsic barriers.

Extrinsic has to do with the following:

Access, time, support services, resources and training.Intrinsic has to do with the followings:Attitudes, beliefs, practices and resistance. These concepts and practices impact is in one way or the other on the level and frequency of use of instructional materials in the classroom. Inadequate level of understanding animation concept and practices may lead to rejection and discontinuance of its use because of the stress, strain and frustration likely to be encountered. It is highly recommended that flyers or booklet serving as guides should accompany any animated instructional material to provided information dealing with the functioning principles underlying how the material works in the teaching and learning process. Every technology or material used in class is subject to the teacher's control. The level of the teachers' creativity and performance skills will determine the level of success or failure of the activities.

The type of animation to be used should vary according to the grade level of the learners and the subject matter to be studied. In whatsoever form and level of usage the teacher must know "how" and "why" they should be used

Education is not just the acquisition of knowledge, but also comprises learning to know, learning to do, and learning to live together (Watkins, 2008). It is route to being refined persons. The use of wired or wireless media is seen as an associate equipment that are connected via internet protocol or other media networks where the option exist or all the communicator points may be fixed or mobile during the communication process (Aluko 2004). The learning in this case is explorative and can be practice in every facet of life especially in formal learning network. The internet and mobile and non print media communication systems have transformed the way information is shared and used. It has dramatic impact on the development in health and total human development. This is the use of advanced communication technologies to exchange information and provide health care services across geographic, time, social and cultural barriers. According to Trepka et al (2008) strong noticeable disease surveillance systems are essential when simplify media resource are used. The use of video as a medial resource is not restricted only to class rooms and learning centres, it can be use on medical campaign in Nigeria and sub-Saharan, As African experiences 24% of the worlds illness and injuries, this can help the world's workforce (WHO 2006)). This inequity is the region's inability to compensate for the brain drain of health professionals with production of suitable education resource visuals within Africa countries to cities and away from far more underserved rural areas (WHO 2010; Mullan et al 2010). It's further argued that animated instructional visual which can be used through ICT to facilitate learning and reduces cost via movable CD that can be carried about without stress. Why teachers from under resourced areas such as rural in Nigeria and African countries are not using the most cost effective, available and widely used technology to enhance their practice must be discouraged. Despite evidence that show that cell phones, software features such as pictures video, music have been used in education for collaboration, tutoring researches. As a result teachers are under tremendous pressure to adopt and use these technologies in their classrooms. Adopting to these changes brought on by new technologies is not longer an option but a necessity if teachers are to unleash the innate potentials of their students (Beyers 2009).

However, the success of using cell phones as a media in education depends on the attitudes and concerns teachers exhibits toward the innovation. Concerns exert a powerful influence on whether or not people adopt a particular innovation. The reason why and how teachers uses instructional DVD or ICT information on cell phones and what prevent its use is central to understanding factors that influence teachers use of a tool (HannesyHeasision and Wamakole, L2010 P.41). This study revealed that though a majority of teachers have never thought of using cell phones or DVDs for education purposes.

Methodology

A structural questioner was design with objective questions and answers.The AIR DVD that was applied on the students. Cover the under listed operation in the human digestive system

- Definitions of major terms in the Digestive System
- The Digestive process and activities from the mouth to the large intestine
- The Digestive activities form the large intestine to he small intestine.
- Digestive activities form the small intestine through the rectum to the anal cavity. The experimental respondents answered the objective question after watching the Animated Instructional Visual Aid and while the control ie those who were not exposed to AIVA DVD answered the same objective question through the oral class room teaching they received. The purpose of the control group in the study is to give us the first impression that AIR influences learning than the chulk and talk method.

The scores were grouped as follows:

A70   -   100

B 60   -   69

C 50   -   59

D 45   -   49

E 40   -   44

F 0   -   39

Procedure for Data Collection

For very efficient execution of this study research assistants were co-opted, comprising teachers in the study locations.The scoring of the instruments was dependent upon the responses obtained from the respondents, in the case of students it was alternative answer A – C for the student to choose the correct alternative. The significance of the students' choice of correct answers gives the researcher an impression on the power of facilitation of the developed AIR DVD.

The data obtained for the study were presented in tables and analysed using descriptive statistical procedures based on the nature of the research questions and hypotheses of the study. Percentages and frequencies were used to present the data collected using the questionnaire. The standard deviation was used to determine variability and the average deviation between the respondents. This statistical method was chosen to determine whether the means of the different groups of Biology students differ or not in their performance among the three zones.

Data Presentation and Analysis on students' responses.

The study was carried out in the three senatorial zones of Bauchi State. The zones include Bauchi, Katagum and Ningi. One school each from the zones piloted, 189 questionnaires were administered to the control and experimental groups respectively. The mean of the experimental group which was the focus of the research was used for thecomparism of the impact of the AIR among the respondance in the zones

The diagram of procedure of classroom application of AIR
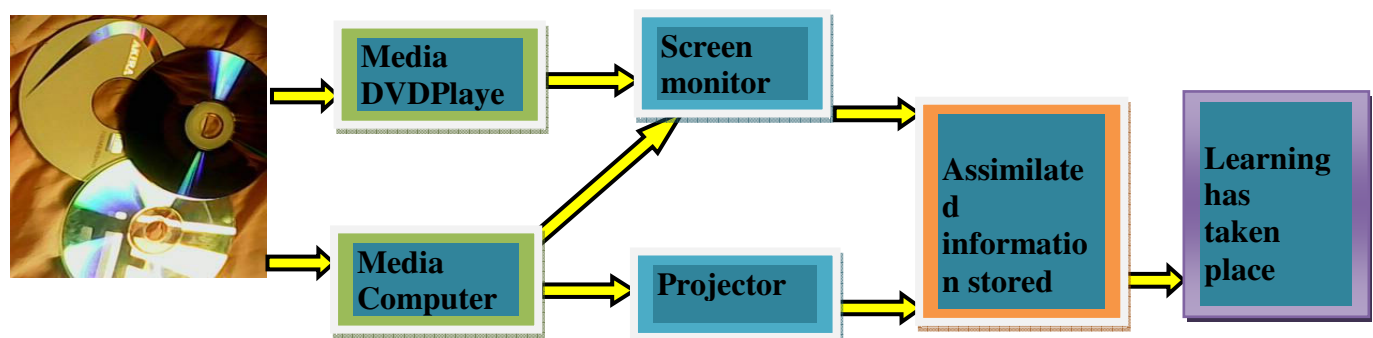
Data presentation for the three schools in the three zones of the research location of the study area.

The data shows a profile from the three locations in the three zones in both numerical tables and diagrams. The experimental group are those exposed to the package while the control are those not exposed to the package but were tested through the oral class room teaching. The usage of percentages in these tables is not the final statistical tool of analysis, but used in an explorative first stage into the work.

IISTE

Government girls college Azare representing location 1

Data on respondents exposed to the animated instructional visual aid.

Grade	Frequency	Percentage
A	7	11
B	3	5
C	19	30
D	12	19
E	13	21
F	9	14
Total	63	100

The table indicates a percentage score of "A" grade - 11%, "B" grade - 5%, "C" grade - 30%,

"D" grade - 19%, "E" grade - 20%, "F" grade - 14%.

Government Secondary School Misau, Bauchi State Location ii

Data on students exposed to the animated instructional visual aid.

Grade	Frequency	Percentage
A	18	28
B	8	13
C	17	27
D	6	10
E	2	3
F	12	19
Total	63	100

The table indicates a percentage scores of "A" grade - 8%, "B" grade - 8%, "C" grade - 17%, "D" grade - 6%, "E" grade - 2%, "F" grade - 12 %.

Unity College Bauchi, Bauchi State Location III

Data on students exposed to the animated instructional visual aid.

Grade	Frequency	Percentage
A	16	25
B	25	40
C	13	21
D	3	5
E	0	0
F	6	9
Total	63	100

The table indicates a percentage score of "A" grade - 25%, "B" grade - 40%, "C" grade - 20%, "D" grade - 5%, "E" grade - 0% and "F" grade - 9%.

Summary of results

	Mean	Standard Deviation	Sample size	Z-Value	P-Value
Location 1	C: 41.4444	14.0113	n_1=63	-4.95	0.001[**]
	E: 54.9206	16.4487	n_2=63		
Location 2	C: 38.2540	11.8171	n_1=63	-8.286	0.000[**]
	E: 57.8572	14.5833	n_2=63		
Location 3	C: 39.9206	11.3767	n_1=63	-6.76	0.0001[**]
	E: 56.1746	15.3292	n_2=63		

** indicates significant difference in means

From the above table, it can be seen that the P-Values in each of the three locations are all less than a significant level of 0.05, implying that students' performance in each case differ significantly between the three zones. The factor for the impressive performance is the AIR. In comparing among the locations, location 2 with mean of 57.8572 outperform among the location, followed by location 3 with 56.1746 and lastly 54.9206 for location 1.

Summary, Conclusion and Recommendation

The study was undertaken to ascertain the extent AIR enhances instructions in post-primary schools in Bauchi Nigeria through animation. The study was guided by a critical study of the principles and practice of animation in teaching a concept in Biology - Human digestive system. The study was guided by specific objectives, that is to compare the performance of the despondence by the mean performance among the location.

The instruments used for data collection were the questionnaire as the primary source, oral interview, and references on relevant literatures as secondary sources to strengthen the main instrument. The data obtained were analysed using frequency distributions, percentages, mean and standard deviation. Based on the analysis and interpretation of the data, the summary of the major findings are as follows:

There was a significant difference in the level of information assimilation based on the use of the animated instructional materials.

- o That those exposed to teaching using animated instructional resource, performed better than those not exposed to it.

- o That students taught with animated instructional material showed retention ability than those taught without.

As Quality education is the basic need for every developing nation, the need for modern instructional materials to enhance teaching and learning is paramount. Better performance can be attained if exposed to instructional materials.

Educational planners must ensure that teacher's education fits harmoniously into the current wave of change particularly in the field of information technology. Media skills can be impacted to teachers through in-house or out of house training, induction seminars, workshops and conferences. Appropriate and consistent use of instructional media and materials in the process of teaching is important in the achievement of learning outcome. The implication therefore is that educational policies should be formulated in such a manner to ensure that teachers utilize instructional media (materials, methods and technologies) consistently in teaching to enhance learning in schools.

Conclusion

The implication of the findings of this study is that animation is a reliable tool for teaching and learning process. Animation brings life to inanimate objects; it concretizes learning and makes teaching – learning process fun. These will significantly enhance the students' performance rate. A reduction in the failure rate will also mean a reduction in all other related problems such as the high dropout rate.

Recommendations

Having examined the availability and utilization of animated instructional media in schools in Bauchi, Ningi and Katagumlocation zones of Bauchi State, several issues have been raised and they include the following:

- o There is the need to introduce variegated media system to address the different course contents and teaching methods.

- o Educational Resource Centres in the states should acquire modern instructional materials and organize Workshops and seminars from time to time to upgrade teachers' skills.

- o Classrooms should be made conducive for learning. Facilities for both projected and non-projected media of instruction should be installed.

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