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ANIMATION INSTRUCTIONAL LEARNING STRATEGY ON STUDENTS' LEARNING INTEREST TOWARDS ACQUISITION OF EMPLOYABILITY SKILLS IN BASIC SCIENCE

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Abstract

The paper examined animation instructional learning strategy on students' learning interest towardsthe acquisition of employability skills in basic science. Basic science is a subject that enables students to acquire the basic knowledge, abilities and understanding needed for them to effectively match into the modern age of science and technology fields and professional careers. It is also a stepping stone that students need for them to have a whole understanding of their future science-related professional careers. The goal of science education cannot be achieved by doing the same thing the same way always. Therefore, there is always the need for modification and change for science learning to remain relevant at all times. This desire for improvement in the quality of scientific knowledge calls for changes in the pattern of learning interaction between the teachers and their students through improved or innovative teaching and learning so that the product of the school system can compete effectively and efficiently in the global world. The improvement or innovation confers relevance and importance to the scientific knowledge acquired in schools for quality and productivity. This process of improvement or innovation requires reshaping the methods, techniques, strategies and approaches to making learning functional, relevant, qualitative and interesting. Therefore, this paper sought to determine the use of animation in instructional learning strategy in basic science as a means of enhancing basic science students' interest in the acquisition of employability skills in basic science learning which will further enable them to fit into relevant employable scientific career and profession. The paper attempted to define animation instruction as a teaching tool that uses text and moving pictures/images in combination with voice or non-vocal sounds to ensure effective instructional learning delivery. The place of animation instruction in the teaching of basic science for the productive learning process, features, benefits and limitations were equally highlighted. The various aspects of animation such as forms and classification were mentioned and suggestions on the use of animation instruction such as basic science teachers should be encouraged to use animation learning instruction as a strategy in teaching and learning basic science.

Keywords: Animation Instructional Learning, Basic Science, Learning Interest and Employability Skills.

INTRODUCTION

The teaching and learning of basic science has to become a subject that is necessary and most important at the basic and beginning of science learning. According to Ojumu (2016), basic science is a subject that deals with the study of living and non-living things, more so, it also combines all other science subjects such as physics, biology, health science, chemistry, etc. In addition, Ojumu further stressed that the knowledge obtained through the learning of basic science is applied systematically to provide advanced knowledge to various understanding of our world.

Basic science according to Sinha (2021) principally refers to the scientific discipline of physics, chemistry, biology and mathematics as well as to their sub-disciplines. More so, Sinha further stated that the principal idea behind something being labeled as basic science leads to a better understanding of natural phenomena. It searches for knowledge and discovers facts and ideas to enable us to understand the already existing phenomenon. To Suresh (2021), basic science is the set of fundamental ideas used in science, more so, basic science is so fundamental that its ideas are used in all branches of science courses and also in areas of technology too.

The purpose of incorporating basic science in the junior secondary school curriculum as being outlined in the National Policy of Education (NPE) (2014), is to prepare students to acquire adequate laboratory and field skills, inculcate meaningful and relevant knowledge needed for further scientific studies, the ability of students to apply scientific knowledge to everyday life in matters of personal and community health, and agriculture; reasonable and functional scientific attitude. Despite these objectives in the teaching of basic science, there are some uncertainties that these objectives are not being achieved as documented. There are shreds of evidence in Hancer (2016) that most post-primary school teachers in Nigeria by standard do not know these objectives in basic science, not to talk of implementing them. Among the resources for the implementation of the basic science learning program, basic science teachers occupy a more significant position as the quality of teachers in basic science teaching and learning determines to an extent the quality of the basic science learning system itself (Onyedrian, 2010).

From all observable points of view, there seem to be a decline in the number of students who opt for further studies in science subjects or courses. The clear point of view to this may be as a result of the fact that students who do not choose science subjects for further studies and careers, perceived science subjects such as physics, chemistry, and biology to be difficult subjects. Ntibi and Edoho (2017) argued that the reason why these students perceived science subjects as being difficult is a result of a lack of sound knowledge at the basic level. To this, Ameh and Dantani (2012) opined that the teaching strategies that are predominantly used by basic science teachers such as the normal chalkboard and talk learning approaches, problem-

solving, etc. in teaching and learning basic science had not fruitfully yielded the expected learning improvement to basic science students, thus, there are more reasons to adopt an effective, improved and innovated learning strategies that will improve the learning interest and retention of basic science concepts in basic science students thereby aiding them to develop interest towards science subjects or courses in the future.

According to Adolphus, Onwiodvokit and Dike (2015), there are teaching and learning strategies that have been proven to be effective in promoting efficient and effective learning among students. One of these learning strategies is animation instructional learning.

Animation instruction learning strategy according to Aremu and Sangodoyin (2010) has been described as the presentation of learning media using both pictorial and verbal forms such as spoken and printed text. Simply it is defined as images in motion. Zanin (2015) equally defined the use of animation in learning as a series of varying images presented dynamically according to the user's taught in ways that help the user to perceive a continuous change over time and develop a more appropriate mental model of the teaching task or presentation. The most interesting idea of learning using animation is that it allows for a wider range of stimuli; thus increasing students' learning attention, engagement and activities. Bello (2014) pointed out that the use of animation in teaching and learning is expressed as an enriched device in which pictures are synchronized in the teaching and learning process to make it look real.

It is important to note that in the use of animation instructional learning, adequate and effective use of computer technology is involved. According to Muhammad, Ibrahim and Kubo (2017), the use of computer animation is said to be one of the recent technological tools that enhances the teaching and learning concepts that are dynamic. Thus, adequate programming of teaching presentations using animation could improve the learning outcome and interest of basic science students. More so, being that computer technology is involved in the teaching and learning approach in the use of animation learning, it will as well be an avenue for employability opportunities and approach since the global ventures are of information and communication programming which is an aid towards enhancing employment opportunities in basic science teaching and learning field. To Amarin (2016), the use of animation instruction in learning is a brilliant and innovative new way that encourages learners to communicate stories, and ideas to learn scientific concepts creatively and originally. More so, it can be particularly useful as a tool in knowledge acquisition that encourages creative thinking in basic science students. The use of animation instructional learning strategy can be interesting and have the power to gain the attention and interest of basic science students for a long period just like the movie animations without getting them boring. This could be helpful to the students since it possesses features that aid them in learning difficult concepts, which also helps the students develop an interest in the science profession and career.

The question that is presented in this work is: Are basic science teachers aware of the use of animation instructional learning as a teaching and learning tool? If they are aware of that, how effectively do they apply it in teaching and learning approach towards enabling basic

science students' understanding in the acquisition of employability skills?

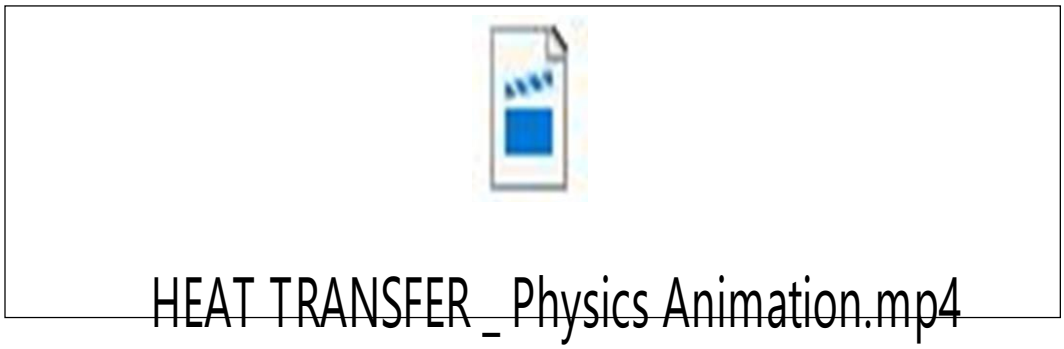
Concept of Animation and Nature of Animation Instructional Learning Strategy

Animation instructional learning strategy is an innovative learning strategy that can support quality teaching and learning process. The use of animation instruction makes concepts clearer and better understood and deepens learning participation skills, enhances students learning interests, and more so, engages the students with a good understanding for future professional careers in the science field. Furthermore, the animation learning strategy makes students acquire basic science knowledge by creating, discovering, more focusing and inventing, thereby making learning to take specific tasks and functions that are essential for the transformation and modernization of science learning and profession of our world in a short period.

According to Lin (2001) animation instruction has its unique dynamic function, which is expected to facilitate the learner encoding the information into long-term memory by providing a "deeper" and "harder" encoding process than static visual. Related research studies by Karlsson (2011) and Zanin (2015) described animated media instruction as integration of hardware and software used in the presentation of information for better comprehension of scientific concepts. Application of animation instructional learning in basic science is the use of computer technology that is programmed such that it involves the combination of imaging, action activities and sound to present some aspects of scientific reality and concepts that are abstract and difficult to demonstrate directly to the basic science students. Gambani, Falode and Adegbenro (2014) stated that the capable features of animation instructional learning can enliven the learning experience of basic science students since it equally promotes flexibility of learning and also allowed a wider range of stimuli thus, increased the active participation of basic science students in learning. More so, Gambani (2010) stressed that animation instructional learning has the power to attract students' interest and attention to learn which will lead to better retention of basic science concepts. In addition, such learning retention allows the basic science students to discover their strengths and weaknesses in science learning.

As earlier stated, an observed record has been identified in the declining number of students who opt to further their studies in science subjects or courses. Animation instructional learning as suggested by some researchers such as Gambani (2010) and Salisu (2015) is a teaching and learning tool that can be used to develop students learning interest in basic science for proper and strong learning foundation. Equally, it will aid in building the basic science future career thereby making them understand the basic ideas needed for their academic journey in scientific fields. For example, use of animation learning can be used for a better explanation of life and health science in biology discipline, subject or course, the effect of technological sciences in physics, and waste management and recycling in chemistry with pictorial representation. In this process, learning will be made visible thereby projecting those learning concepts that some students might think to be abstract into a real-life phenomenon.

Animational Clips on Life and Health Sciences in Biology Learning



Animational Clips on Technological Sciences in Physics Learning

Animational Clips on Waste Management and Recycling Sciences in Chemistry Learning

Animation Instructional Learning Strategy and Students' Interest in Basic Science Interest is a positive attitude of one toward an activity that makes the individual more likely to be involved or par-take in such an activity. To Ryan (2013), students' interests could play a substantial role in their attitude to study which is exhibited in an individual's beliefs, feelings, emotions, or intended behaviour. Some students may be intellectually and physically capable of learning, but they will never learn any new ideas or information unless their interest in those ideas or information is stimulated. Therefore, basic science students' interest in science in the future is a psychological construct understood as the relation of the students to basic scientific matters; determined among other knowledge the students might have in the field, the experience of competence, and self-determined engagement added with the affective components. In a general context, individual interest in basic science is an enduring personal disposition to engage with different areas of science studies.

The use of animation instructional learning strategy to foster the learning interest of basic science students towards the learning process of science, in general, is in agreement with some major learning theories such as cognitive learning theory and constructivism learning theory proposed that humans learn by reciprocal interaction around suitable construction task, creates growth in the knowledge through perception and processing critical information in working memory. The main assumption of cognitive learning theory according to the work of Vygotsky (1978) is that mutual interaction between learners with the mental processing of the information rather than with motivation will improve the cognitive structure of the learner.

The cognitive theory of multimedia learning is a supporting learning theory that expresses the communication of information to learners using pictures, text and words to foster meaningful and interesting learning (Baddeley, 2002). In the use of animation instructional learning, words can be spoken or written and the pictures can be any form of graphical imagery including illustrations, photos and animation (Muhammad, Ibrahim & Kubo, 2017).

Animation instruction of learning in teaching and learning in a way attempts to use cognitive research in the combination of words and pictures/imaging than from words alone, thus, this is the underlying principle of multimedia learning. The theory equally believed that better acquisition and transfer of knowledge, as well as interest in learning concepts, is assumed when information or ideas are delivered through the use of visual aid in learning and this is satisfied by the animation instructional learning strategy. The main purpose of this paper is to ascertain how the use of words and graphic images (moving pictures) can be used to foster the learning interest of students in basic science as well as create in the mind of basic science students the interest in opting for professions relating to scientific fields. Animation instructional learning is a learning tool that will help the learner to have a mental model of what he/she learns and construct knowledge of his/her own that will as well assist him/her in connecting the incoming information to the existing one in his/her cognitive structure.

Features of Animation Instructional Learning Strategy

Karlsson (2011) identified three features that make animation learning instruction an exciting learning tool for learners. These features are pictures, sound and texts. These identified features give animation instructional learning strategy the capacity to easily attract the learning interest of the learners. Animation instructional learning gives an indication of certain movements and stimulations that make certain abstract concepts real which could engage the learning interest of students through critical thinking and active participation. It's use as a learning tool is being strongly encouraged by researchers such as Owolabi and Oginni (2014) who opined that its efficacy as innovative learning has greatly improved the performance of students in science especially those with special needs and slow learners. Some other empirical research studies such as Samuel (2018) observed that students exposed to basic science learning with multimedia and computer animation method of instruction had higher interest and retention of science concepts taught. More so, the report from Nwanekezi and Kalu (2012) also affirmed that the use of animation instructional learning tools serves as a better explanation for encouraging students learning interest in basic sciences.

From reviewed literature, the animation instructional learning strategy has the attributes of explaining concepts from different angles thereby conveying different scientific information in a more meaningful way to learners. This special attribute of its learning tool makes it relevant for teaching and learning of basic sciences.

Animation Instructional Learning Forms

According to Muhammad et al. (2017), there are two main forms of animation instruction; these include, narrative animation and non-narrative animation. The narrative animation represents one moment in a sequence of events with stories as an explanation to the demonstrated actions by the animated show, while the non-animation is a presentation of graphic pictures/imaging without any further explanation to follow the events, but motions associated with any event may be back-up with sounds to enhance the attractiveness of the

show. According to Muhammad et al. (2017), the narrative animation learning tool had been the dominant learning form over non-narrative in schools because of its audio-visual representation that attracts and captures the attention of the students easily. The use of animation in instructional learning can be classified along various dimensions which include the nature of the process being visualized, the level of the learners' interactivity, the dimensionality and the level of abstraction (Amarin, 2016).

Animation Instructional Learning Strategy for Quality and Productive Basic Science Education for Acquisition of Employability Skills.

For effective teaching and learning using animation learning instruction, careful planning in its programming (building) and presentation could result in quality and productive teaching and learning in basic science because of its features that enhance motivation and interest in the learning process. Owolabi and Oginni (2014) in their opinion believed that animation instructional learning is of great benefit in teaching and learning basic science most especially to those with special needs and slow learners; equally to students with disabilities such as dyslexia. More research findings have proven that presentation with text and pictures/imaging conveys information better than using text alone because they involve the use of demonstration and presentation that are both audio and visual, giving the basic science students the insight into their future endeavors.

In addition, the animation instructional learning strategy supports students' cognitive processes that ultimately result in their understanding of concepts involved in the subject matter. Furthermore, animation instructional learning enables basic science teachers to demonstrate content and concepts visually the way they want since they have control of every aspect of the learning presentation. The interactive and engagement processes involved in the use of animation instructional learning is a wide opportunity for cooperative learning among basic science students thereby helping them to build learning and employable skill ideas and better their understanding in those areas.

Conclusion

The teaching and learning method adopted by basic science teachers the teaching of basic science has a great effect on the basic science students in terms of understanding and interest motivated approach to learning and hence, the need for basic science teachers to adopt an appropriate teaching strategy that will enhance the students' interest in the learning process. The various features of animation instructional learning strategy as a learning tool is that it assists basic science teachers with ease and better presentation, thereby, making basic science learning interesting. More so, it is viewed that the use of animation instruction enhances students' learning approach and better means of disseminating knowledge in various aspects of scientific studies and careers. In conclusion, this paper summarized some of the advantages of animation instruction as one of the best teaching approaches in disseminating information to students with special needs and slow learners, and better engagement of students in the learning process and helping them mediate future career endeavors.

Limitations of Animation Instructional Learning Strategy in Basic Science Education

Despite the numerous acknowledged benefits of animation instructional learning in teaching and learning in basic science, several limitations are observed in its implementation.

1. Some basic science teachers are not flexible with the use of multimedia and audio-visual aids when teaching basic science, therefore, these teachers find it quite complex to use audio-visual aids to complement the use of the chalkboard teaching method while some others see the use of multimedia learning instruction as a waste of time. In other words, for basic science teachers to effectively utilize animation learning in teaching basic science, they must have certain programming experience to be able to implement computer animation programs. Therefore, using animation instructional learning strategy is not easy to use by almost all the basic science.
2. Some of the real-life learning approaches are being modified in the use of animation instruction as such faking information is involved in the animation instructional learning process.

Recommendations

The use of animation instructional learning strategy will be effective in teaching and learning basic science and other related subjects. The various reviewed empirical studies of related works of literature, suggest that basic science teachers should be encouraged to utilize it in teaching of basic science subject.

Students can be motivated to learn and understand if animation instruction is involved in basic concepts in science through observation and active involvement. Basic science teachers, therefore, should be encouraged to diversify their teaching and learning approaches through the use of innovative learning approaches such as animation instructional learning strategy. More several reviewed studies on the effectiveness of animation instruction in learning basic science showed that both males and females basic science students benefit positively in terms of learning approach and interest, therefore, basic science teachers should employ this learning strategy to improve both gender interest in basic science learning.

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