

BIOLOGY STUDENTS' PERCEPTION AND ATTITUDE TOWARDS ADOPTION OF YOUTUBE INSTRUCTIONAL VIDEO FOR HIGHER EDUCATION IN NIGER STATE, NIGERIA

by

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Abstract

This study investigated Biology students' Perception and Attitude towards adoption of YouTube instructional video in institutions of Higher Education, Niger State. The study was a descriptive research of the survey type. The research instrument was a 20-item five point likert scale questionnaire used to elicit the needed information from students. The instrument was validated and the reliability coefficient yielded 0.84 using Kuder Richardson (KR_{21}). The study has four research question and tested two null hypotheses. The Research questions were answered using frequency count and simple percentage while the null hypotheses were analyzed using t-test in statistical package for social sciences (SPSS) version 20. The findings of the study revealed that biology students' had positive perception and attitude towards YouTube adoption, the study also revealed that there was no significant difference between male and female biology students' perception and attitude towards adoption of YouTube video. Based on the above findings, it was recommended that YouTube video should be used in institutions of higher education for teaching and learning of Biology.

Key words: perception, Attitude, Adoption, YouTube, Internet, Higher Education, Technology, Social media, video.

Introduction

The world is ever changing due to the advancement in the realm of science and technology. It is evolving at a very fast rate that it seems hard to escape its presence. Nigeria and indeed, many developing nations are experiencing rapid changes in technological advancement. As it is today, most information gathering and dissemination are done through the use of new technological devices. New technologies according to (Dawes, 2001) may provide a lot of opportunities that could support and improve education situation such as; creating new communication channels between teachers and students which are not existed in conventional education. They also create new strategies and techniques that fit with new teaching styles. Therefore, adopting new technologies such as the use of internet in our universities will help us to prepare a new generation in order to meet the needs of the 21st century.

Since the invention of internet, Science, education, commercialization and socialization have changed dramatically, the internet has become an ever growing medium for learning and teaching that offers Lecturers and students alike an enormous amount of possibilities to practice and apply their skills (Lenhart, Madden, Rankin Macgill, & Smith, 2008). The internet according to Kling (2000) is a new broadcast that can be used in any part of the world in a synchronized way, online or

offline, to get together text, sound video and provide services like E- mail, data transfer, video conferencing and so on. Its use in teaching is becoming more usual and common tool in present and distance teaching. The use of internet facilitates research works, assignments and projects in Biology. In the area of research it provides opportunities for scholars to communicate with one another through E- mail, mailing list and new groups chat rooms. These resources enable communication between scholars as they can post research, assignments, books or journal list references to online materials (Yusuf & Onasanya, 2004).

The effectiveness of the internet as a pedagogical tool is noticed and its integration into the classroom holds benefits for lecturers and students. A major advantage that the internet has brought to fore is social media which are tools that facilitate connection and interaction among people around the globe thereby turning the world to a global village (Sonja & Carina, 2014). Social media are the tools and platforms that people use to publish contents and interact socially online. According to Heathfield (2013), user generated content includes: conversation, articles, images or pictures, recipes and anything that an individual might share with others in their daily lives. Social media according to Arnold and Paulus (2010) refer to media for social interaction which use highly accessible and scalable publishing

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techniques. They include the various online technology tools that enable people to communicate easily via the Internet to share information and resources.

Social media systems therefore do not only make it easier for companies to communicate with their consumers, but also makes it easier for institutions of higher education to communicate related course work to their students, to encourage discussion between and among students and to address administrative issues (Moran, Seaman & Tinti-Kane, 2011; Adamson, 2012).

There are various social media tools that can be used to bridge the transactional distance between students and lecturers. Some of these popular social media tools include Facebook, YouTube, MySpace, twitter and blogs. Web Analytics Association (2006) reported that MySpace, Facebook and YouTube are the top three favorite websites of students in higher education. Founded in 2005, YouTube has quickly become a communication platform on the internet that the web 2.0 generation is using daily. YouTube is an internet application in which people can upload, share and watch videos. There are millions of messages being uploaded each day onto this forum (YouTube, 2013).

YouTube is a very attractive social medium that contribute to the global education, it is being increasingly used by educators to

teach science subjects. It offers fast and fun access to biologically – based videos and instruction from all over the globe. In other words, YouTube is making new demands on learning that are changing the learning ecology (Kwan, Agapito & Bascos, 2008). Every year, YouTube official website <http://www.YouTube.com> shares astonishing statistics about the use of YouTube worldwide. According to the website, You Tube is localized in 43 countries and across 60 languages. It had more than one million views on earth. 100 million people take a social action on YouTube every week. These statistics show the influence of YouTube on sharing information and knowledge with other people. Therefore Utilizing YouTube video in an informative manner is beneficial for illustrating a concept, presenting an alternative viewpoint, stimulating a learning activity, and motivating the students (Terrantino, 2011). As such, these videos can be employed in the teaching and learning of Biology in institutions of higher education.

However, despite this purported benefit of YouTube in Education recent studies (Nyirongo, 2009; Lwoga, 2012) have advocated that institutions of higher education in developing countries are slow to bring in the use of YouTube into the main stream and maximize its potential benefits in the classroom. They discovered that failing to acknowledge the importance of understanding YouTube was an important

issue. Some Lecturers and students may lack the necessary skills to use YouTube effectively, yet colleges and universities continue to invest large sums of money in automation and electronic communication facilities. For this reason Davis, (2011) suggested that the study of students attitude towards YouTube can in many ways help to prepare them for the future. Lee and Lehto, (2013) proposed that students attitude towards YouTube provides a beneficial construct to predict learning outcomes. The theory of technology acceptance model was really designed to test user's attitude to accept new technology. This theory proposed by Davis, (1983) explained a variety of human behaviors based on intentions that are jointly determined by attitude. According to TAM (Technology Acceptance Model), perceived usefulness and perceived ease of use shape an individual's attitude for using the technology.

Attitudes are internal states that influence what the learners are likely to do. The internal state is some degree of positive/negative or favorable /unfavorable reaction towards an object . Although, Nigerian tertiary institutions might be aware of the different uses and benefits of YouTube, it is still important to get the students perception on using YouTube system. Picardo, (2011) stated that students' perception and use of technology may play a part in the absence of YouTube in schools. A question still stands 'Do students wish to

interact with their teachers online'? The answer to this question may be more complex than it appears to be, as the participation of students in a network should be voluntary in order to ensure that necessary quality of interaction and cooperation is obtained, in order to improve teaching and learning of Biology in higher education.

Biology has been identified as a very important science subject and its importance in science development of any nation has been widely reported (Edom, 2011). Biology is the science that deals with life: it is a unified group of life sciences, dealing with development, growth response, reproduction, metabolism. evolution and the inter-relationship of all living and non-living things in our environment. It is the epicenter of all studies in the faculties of science, education, health and medicine, agriculture, engineering. technology, social science and management. Biology plays a key role in industrialization and other sectors of the economy (Umar, 2011). It is a practical subject, which equips students with concepts and skills that are useful in solving the day-to-day problems of life. The study of biology aims at providing the learner with the necessary knowledge with which to control or change the environment for the benefit of an individual, family or community. But despite its undeniable importance in our society, the teaching of Biology is far from being straightforward

(Aladejana, 2010).

Presently, Nigerian higher education employs conventional methods in the course of Biology teaching, Where Lecturers would explain the course content to students and the students would record notes or refer to additional references available through the school library. Such a method is lecturer centered, with the lecturer explaining the material and the students acting as mere recipients. Consequently, there is limited connection between the instructor and the students, such that the learning process is entirely dependent on the lecturer, who effectively heaps information on the learners (Ballard & Bates 2008). Nevertheless, some lecturers may make use of teaching aids, offering an opportunity for students to discuss the resources further with the instructor. The above method of instruction often concludes with the instructor enquiring whether the students have any understanding, and the method is widespread in many nations (Fry, 2009). YouTube as an avenue for learning and teaching is deemed as an alternative to these traditional systems, where it can generate knowledge via numerous academic activities in our institutions of higher education.

Higher education provides post-secondary education through teaching and research for the production of manpower in order to develop the society in all ramifications.

Federal Republic of Nigeria, National policy on Education (2004) states that higher education includes Universities, Polytechnics, Monotechnics and Colleges of Education. The goals of tertiary education according to National Policy on Education, (FRN, 2004) are as follows:

1. Contribute to national development through higher-level relevant manpower training;
2. Develop and inculcate proper values for the survival of the individual and society;
3. Develop the intellectual capacity of individuals to understand and appropriate their local and external environments;
4. Acquire both physical and intellectual skill which will enable individuals to be self-reliant and useful members of society;
5. Promote and encourage scholarship and community service;
6. Forge and cement national unity; and
7. Promote national and international understanding and interaction.

Adoption implies accepting something created by another person or foreign to one's nature. However, vocabulary dictionary (2015) defined adoption as a way of following a course of action by choice. Gender differences have been examined in various studies regarding the moderate effect in the context of YouTube adoption (Ong & Lai, 2006; Wang, Wu & Wang, 2009; Terzis & Economides, 2011). These

studies clearly demonstrate that providing more detailed information about difference is increasingly important for teachers and learning technology providers. By understanding better gender differences in student's attitude towards YouTube, lecturers will know how to encourage and improve learning processes for students according to gender. However, previous research regarding gender differences in perceptions and adoption of YouTube found mixed results (Bertolo, 2008). Some studies about YouTube usage found that males had significantly higher positive perceptions regarding YouTube than females (Ong & Lai, 2006; Zhou & Xu, 2007). Other studies showed no gender gap regarding perception (Davis & Davis, 2007). From a logical perspective, the conflicting results suggest the construct of YouTube under investigation may be unrelated to a specified task and thus be subjected to inappropriate measurement.

In Education, the use of the internet has become a worldwide phenomenon; Educators are using the power inherent in the internet to influence teaching and learning to students directly or indirectly in institutions of higher education. Despite the awareness on the significance of the internet and its tools for the implementation of the curriculum, the application of YouTube for educational purpose in Nigeria has not yet received adequate attention. Though, Nigerian students were found using YouTube on their mobile phone for

social interaction, whether they have a positive or negative attitude and perception towards its use to supplement their learning still needs a research searchlight.

Similarly, not many studies have been conducted on the use of YouTube for educational purpose in Nigeria compared to studies in United Kingdom, United States of America and other parts of the world. Due to this gap in knowledge, very little is known about Biology students' perception and attitude towards the adoption of YouTube instructional video as an alternative instructional delivery system where lectures are recorded and posted on YouTube for students to review them whenever they want. Given this background, there is a clear need to find out Biology students' perception and attitude towards adoption of YouTube as an instructional video for higher education in Niger state, Nigeria.

Research Questions

- i. What is the student's perception of YouTube as an instructional video in learning of Biology?
- ii. What is the difference between male and female students perception on YouTube as an instructional video in learning of Biology?
- iii. What is the attitude of students towards adoption of YouTube as an instructional video in learning Biology?
- iv. What is the difference between male

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and female students attitude towards adoption of YouTube as an instructional video in learning of Biology?

Hypotheses (null)

- Ho₁:** There is no significant difference between male and female students' perception of YouTube as an instructional video in learning of Biology.
- Ho₂:** There is no significant difference between male and female students' attitude towards adoption of YouTube as an instructional video in learning of Biology.

Methodology

The research design adopted for this study is the descriptive survey research design. Survey research is used where a group of people or items is studied by collecting and analyzing data from people or items considered to be representative of the entire group.

The population of the study comprised of 42,439 regular students in the 2014/2015 academic session from four government-owned institutions of higher education located within Niger State. They include: Federal University of Technology (FUT), Minna; Ibrahim Badamasi Babangida University (IBBU), Lapai; Niger State Polytechnic, Zungeru and Niger State College of Education (COE), Minna. The target population consists of 2,902 Biology

students from four institutions of higher education offering Biology as a course of study in Niger State.

The sample of this study is made up of 255 Biology students (113 males and 142 females) from three selected higher educations in Niger State; they are COE, Minna; Niger State Polytechnic, Zungeru and IBB University, Lapai. Purposive sampling was employed in the selection of the three institutions because of the nature of course of study, which is Biology. Proportionate random sampling technique was used to select 255 Biology students. The reason for disproportionate random sampling is because of the difference in number of population in each school selected.

The instrument used for the study is a Questionnaire on Biology Students perception and attitude towards adoption of YouTube instructional video (BSPAAYIV). The instrument (BSPAAYIV) which was designed by the researchers consist of three sections A, B and C. section A is made up of demographic data of the respondent. Section B contains ten items on student's perception towards the adoption of YouTube as an instructional video and section C comprise of ten items on students attitude towards the adoption of YouTube.

All items in section B and C consist of positively and negatively worded items with a five likert scale format, and the

respondents were guided to respond to each item thus: Strongly agree = SA, Agree = A, Neutral = N, Disagree = D, Strongly disagree = SD. The weights are 5, 4, 3, 2, 1 allocated values and vice versa for negative items respectively.

The questions were subjected to screening, correction and reframing by two Educational technology expert from the Department of Science Education, Federal University of Technology, Minna, a Biology expert from the Department of Biological sciences, Federal university of Technology, Minna. The instrument was certified to have both face and content validity. The test was administered purposively to 30 Biology students (17 males and 8 females) from the department

of Biological sciences Federal University of Technology, Minna which is within the target population but outside the school sampled for the study. A reliability coefficient was obtained using Kuder-Richardson (KR 21), which yielded 0.89. Data collected were analyzed using simple percentage and frequency count to answer the research questions while t-test in Statistical Package for Social Sciences (SPSS) version 20.00 was used in testing the two hypotheses.

Results

Research Question one

What is the kind of perception students have on YouTube as an instructional video in learning of Biology?

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Table 1: Responses and percentage analysis of students' perception on the adoption of YouTube instructional video in the learning of Biology in institutions of Higher Education

S/N	ITEMS	N	Positive Response	%	Negative Response	%
1	The use of YouTube will help students learn more about Biology	255	207	81.17	48	18.82
2	YouTube instructional video is an unreliable means of learning Biology.	255	114	44.70	141	55.29
3	YouTube will make it easier for students to understand the course content in Biology.	255	163	63.92	92	36.07
4	I would like to have YouTube incorporated in all my courses.	255	144	56.47	111	43.52
5	The use of YouTube instructional video cannot meet students learning needs in Biology.	255	97	38.03	158	61.96
6	Interaction with YouTube is clear and understandable.	255	157	61.56	98	38.43
7	The use of YouTube is irrelevant to learning Biology.	255	105	41.17	150	58.82
8	YouTube enhances the effectiveness of students learning activities.	255	165	64.70	90	35.29
9	Using YouTube will improve students' grade in Biology.	255	139	54.50	116	45.49
10	Using YouTube instructional video will improve students' general performance academically.	255	162	63.52	93	36.47
Total			1453	56.97	1097	43.02

Table 1 showed the percentage analysis of students' responses on their perception towards adoption of YouTube video in the learning of Biology in institutions of Higher Education. The average percentage of positive and negative responses was 56.97% and 43.02% respectively. This indicates that students had a positive

perception towards the adoption of YouTube video in the teaching of Biology in institutions of Higher Education.

Research Question 2

What is the Attitude of students towards adoption of YouTube as an instructional video in learning Biology?

Table 2: Responses of students' attitudes towards the adoption of YouTube instructional video in the learning of Biology in institutions of Higher Education

S/N	ITEMS	N	Positive Response	%	Negative Response	%
1	The use of YouTube video is a good instructional technology.	255	210	82.35	45	17.65
2	Using YouTube for learning is time consuming.	255	104	40.78	151	59.21
3	Using YouTube as an instructional video makes learning difficult.	255	79	30.98	176	69.01
4	The use of YouTube video provides a suitable learning environment	255	160	62.74	95	37.25
5	I have positive attitude towards YouTube video in learning Biology.	255	157	61.56	98	38.43
6	Using YouTube video will facilitate students' attitude towards knowledge acquisition.	255	163	63.92	92	36.07
7	I like the idea of using YouTube to develop research abilities.	255	174	68.23	81	31.76
8	Using YouTube video to teach will provide a suitable learning environment.	255	78	30.58	177	69.41
9	The use of YouTube video in learning biology will have positive impact on students.	255	167	65.49	88	34.50
10	I don't enjoy using YouTube video in learning Biology.	255	85	33.33	170	66.66
Total			1377	53.99	1173	45.99

Table 2 showed percentage analysis of students' positive and negative responses on their Attitude towards adoption of YouTube video in the learning of Biology in institutions of Higher Education. The average percentage of positive and negative responses was 53.99% and 45.99% respectively. This means that students had a positive Attitude towards adoption of

YouTube video in the learning of Biology in institutions of Higher Education in Niger State.

Hypotheses one (Ho₁)

There is no significant difference between male and female students' perception of YouTube as an instructional video in learning of Biology.

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Table 3: Summary of t-test Analysis of male and female students' perception of YouTube as an instructional video in learning of Biology

Groups	N	df	\bar{x}	SD	t-value	P-value
Males	113	253	34.42	7.921	0.033	0.856
Females	142		36.14	8.111		

NS: Not Significant at $P > 0.05$ alpha level

Table 3 Showed t-test analysis of male and female Students' perception of YouTube instructional video in the learning of Biology. The result indicated that statistically there was no significant difference between the two groups, t-value = 0.033, df = 253, p-value > 0.05 with a mean score of 34.42 and standard deviation of 7.921 for male while the mean score for female is 36.14 with a standard deviation of 8.111. Hence, hypotheses one was not

rejected. This implies that both male and female Biology students have a positive perception towards the adoption of YouTube instructional video in the learning of Biology.

Hypothesis Four (Ho₄)

There is no significant difference between male and female students' attitude towards adoption of YouTube as an instructional video in learning of Biology.

Table 4: Summary of t-test Analysis of male and female students' attitude towards adoption of YouTube as an instructional video in learning of Biology

Groups	N	df	\bar{x}	SD	t-value	P-value
Males	113	253	34.67	8.220	0.650	0.421
Females	142		35.94	7.911		

NS: Not Significant at $P > 0.05$ alpha level

Table 4 Showed t-test analysis regarding male and female Students' Attitude towards adoption of YouTube instructional video in the learning of Biology. The result indicated that there was statistically no significant difference between the two groups, t-value

= 0.650, df = 253, p-value > 0.05 with a mean score of 34.67 and standard deviation of 8.220 for male while the mean score for female is 35.94 with a standard deviation of 7.911. Hence, hypotheses two was not rejected. This implies that both male and

female Biology Students have a positive attitude towards the adoption of YouTube instructional video in the learning of Biology.

Discussion

The findings of this study showed that a greater percentage of biology students demonstrated positive perception towards adoption of YouTube as an instructional video in the learning of biology, many of the students indicated that YouTube video will help them learn more about biology while others believe it will enhance the effectiveness of their learning activities because it provides a stimulating and differentiated approach to learning new material. George and Dellasega, (2011) found similar results when assessing expectations of using YouTube in the classroom. In another related work, Synder and Burke, (2008) also found positive result in their study on students' perception of YouTube usage in the college classroom.

This finding is supported by the earlier findings of Gunadevi and Abdullahi, (2013) who in their study found that students feel YouTube video will enhance their learning activities.

Hypotheses three investigates whether there is no significant difference between male and female Biology students perception towards the adoption of YouTube in the learning of Biology in higher education in Niger State. The result

reveals that there was no significant difference between male and female Biology students perception towards YouTube adoption. This findings is in agreement with the findings of Burke, Synder and Rager, (2009) who found that students had positive perceptions towards YouTube adoption in the classroom.

Hypotheses four result indicates that there is no significant difference between male and female Biology students attitude towards YouTube adoption in higher education in Niger state. This result is in line with the findings of Buzzetto-more, (2012) who found that gender has no influence on students' attitude towards YouTube adoption.

Conclusion

Based on the findings of this study, it was concluded that Lecturers had positive perception towards the adoption of YouTube video in the teaching of Biology in institutions of higher education, and positive attitude towards its adoption. Students on the hand had positive perception and attitude towards the adoption of YouTube video in learning of Biology. Gender has no influence on the perception and attitude of lecturers towards the adoption of YouTube video in the teaching of Biology, as no significant difference was found among Biology lecturers. Also, there was no significant difference between male and female Biology students perception towards the

adoption of YouTube video in the learning of Biology. There was no significant difference between male and female Biology students attitude towards the adoption of YouTube in the learning of Biology.

Recommendations

Based on the findings and conclusion of this study, the following recommendation was made:

1. Lecturers should seek out professional development on how to use YouTube technology and incorporate it into their classrooms, because students recommend that lecturers use it and they feel it enhances their learning.
2. Curricular for teaching that will inculcate the use of YouTube infrastructure by lecturers and students should be developed.
3. Adequate power supply should be provided in and around the school to stimulate the use of YouTube for teaching and learning of biology.
4. The Government should regulate network providers so that there will be a reduction in factors limiting the effective adoption of YouTube in teaching and learning in institutions of higher education.
5. Universities, polytechnics and colleges of education should introduce compulsory courses on YouTube for students to prepare them for YouTube learning.

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