

**PERCEPTION OF UNDERGRADUATES ON THE
UTILIZATION OF ONLINE COLLABORATIVE TOOLS
FOR LEARNING IN SELECTED UNIVERSITIES IN
SOUTH-WEST, NIGERIA**

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Abstract

Online collaborative tools are online innovative and instructional tools that can be used to supplement traditional teaching and learning for the enhancements of students' positive academics performance. In spite of its immense instructional benefits, these tools have not been fully utilised for learning among undergraduates in Nigeria. Hence, the study examined the Perception of Undergraduates on the Utilization of online Collaborative tools for learning in selected Universities in South-west, Nigeria. The objectives of the study were to ; (i) Take inventory of the kind of online accessible tools available for learning among undergraduates in South-west Nigeria; (ii) investigate the perception of undergraduates towards online collaborative tools for learning. The study was a descriptive of the cross-sectional survey type. Two research questions were answered and tested respectively. One thousand, four hundreds and twelve sample of respondents were drawn from 12 Federal and State universities in South-west, Nigeria. Data were collected using structured questionnaire. Descriptive statistics of Mean score, Frequency counts and Percentage distribution were used to answer research questions. The findings of the study showed that: Majority of the respondents had the following online collaborative tools: Facebook, Google Plus (Google +), To Go, Twitter, You Tube, LinkedIn, Myspace, Blogger.com and What's Aps. Most respondents Perceived online collaborative tools to be useful for learning with grand mean score of 3.15. The study

concluded that there was a significant relationship between undergraduates students' perceived usefulness, ease of use, attitude and intention to use collaborative tools for learning. Based on the findings, the study recommends that government should give the necessary supports on the procurement of all needed facilities for collaborative learning. Undergraduates should help themselves by exhibiting high positive attitudes and competencies in the utilization of online collaborative tools. Also, Undergraduate should help themselves by making use of online collaborative tools for instructional purpose and shift their foci from using it for fun and entertainment.

Keywords: online collaborative tools, learning, Undergraduates, perceived usefulness, ease of use, attitude and intention to use.

INTRODUCTION

The importance of education to mankind cannot be overemphasized, most especially in the era of science and technology breakthrough. Iloanusi and Osuagwu (2009) defined education as a major tool for national socio-economic growth and development. National Policy on Education (FRN, 2014) stressed the importance of education as an instrument for change of any society where the need of individual citizens must be given adequate attention. The importance of education should cater for the needs of individual citizens and society at large. Education is recognised as a basic right and a central element in human development and thus a prerequisite for achieving the wider social, cultural and economic goals (NPE, 2004). Education is a necessity and a worthwhile venture for the development of the nation (UNESCO, 2006).

Catherine (2010) defined education as a process of preparing children for the real world by giving them the tools they need to live and function on their own. In the past, a person was considered literate based on his or her ability to read and write. However, in recent time, being literate has gone beyond these alone to include how utilise online technological devices (Mullen & Wedwick, 2008). The world is experiencing a wave of social and technological transformation as the society is becoming more oriented to the usage of ICT. Today, people live in a society where instantaneous worldwide communication through electronic media such as Internet, computer as soon becomes common.

ICT has brought about changes in the economic, political and educational sphere of lives such that its use has become so important that it is one of the significant indices of national and economic development. It is becoming the basic building block of modern society. The ICT world has initiated a transition of emphasis from analogous

educational research based technological development to that of digital knowledge-based technological development in education (Jude & Dankoro, 2012). The use of ICT has also become the strategic alternatives to enhance the delivery of quality education effectively and efficiently for universities all over the world (Ruthven, Hennessy & Brindley, 2004).

The advancement, which ICT resources offer higher education, can be evident through accessibility to quality resource materials and utilization in instructional delivery. Particularly, teachers are competent in the use of resource materials to enhance learners' creativity and intellectual development. In the era of information explosion and technological development, the inclusion of ICT in the teaching and learning process cannot be overlooked (Ozaji, 2003).

The 21st century has become ICT-driven and the enormous benefits and application of ICT in teaching and learning has captured the interest and attention of both the federal and state governments in Nigeria, as well as non-governmental organizations (Pollard, 2004) for sustaining growth in all ramifications. The recognition accorded ICT in education stems from both its benefits and effectiveness in tasks performance which has been experienced in almost all facets of life (Pollard, 2004). The role of ICT in instruction in the 21st century is rapidly becoming one of the most important and widely discussed issues in contemporary education policy (Aduwa-Ogiegbean & Iyamu, 2005). In addition, the integration of ICT into the curriculum of many nations is an attempt towards achieving massive computer literacy (Tenson, 2003).

Realizing the importance of ICT in education, several studies have established its educational benefits at all levels. Nwankwo (2011) stated that the successful management of education system requires effective use of ICT tools for providing smooth operations to policy making, teaching and learning, research and monitoring education through information. ICT is an umbrella term that subsumes any communication device or application of such to access and disseminate information, especially using the Internet.

The perception of undergraduate students on the utilisation of ICTs, for learning will go a long way in its easy adoption. Perceived usefulness, according to Davis (1989), is the degree to which a person believes that using a particular system would enhance his or her job performance while perceived ease of use is the degree to which a person believes that using a particular system would be free from effort. Attitude is the controller of actual behaviour of an individual, consciously or unconsciously (Yusuf, 2005). Littlejohn (2002) described attitude as an accumulation of information about an object, person, and situation or experience a disposition to act in a positive or negative way toward some object. Littlejohn (2002), attitudes toward

any object play an extremely important role in influencing subsequent behaviours towards it.

Positive attitude on the part of the students is very important if online collaborative tools are integrated in to the university curriculum. Adetimirin (2008) studied factors affecting the use of technology in higher education. Among the factors that affect its successful use in the classroom are students' attitudes and disbelief in the use of technology. Studies on student attitude to computer confirmed that students have positive attitude, yet computers were not being used for instructional purpose (Olumorin, 2008). The National Policy on Education (FRN, 2004) emphasised the need to use ICT at all levels of education. Students at the university level should therefore not develop negative attitude to implementation of ICT in general and online collaborative tools in particular. This is because good ICT-related behaviour among undergraduates' students would replicate good ICT behaviour on their students.

However, no matter how positive the attitude may be, if the students do not intend to use OCTs for learning, all other efforts will continue to proof abortive. Intention refers to having something in mind as a plan or purpose. It means planning to do something. It is a matter of willingness from the heart. Adeyanju (2012) reported that there are more computers and other information technologies in tertiary institutions nowadays, the use of these technologies have in a large number of cases, not enhanced either individual or institutional level of productivity. The reasons adduced for this include inadequate training in new skills, and unwillingness by students themselves to learn new skills.

Statement of the Problem

Online collaborative tools are not the only effective learning collaborative tools. The application of online collaborative tools for learning, particularly in Nigerian universities is still at its infancy. Majority of Nigerian undergraduate students are neither familiar, nor skilful in employing these tools in the process of learning. It is of high importance that the conventional learning method should be supplemented with online collaborative tools like Blog, Twitter, Skype, YouTube, Wikki, Google Docs, LinkedIn, Drawbox, Facebook, Flickr which can stimulate and arouse students' interest to learn effectively. This will greatly influence their academic performance positively and consequently facilitate learning. Most Nigerian university students utilize these online collaborative tools for entertainment purposes (listening to music, chatting on social media sites) which distract them from learning.

There are online collaborative tools that they can download to their mobile devices, which may improve their s and positively influence their academic performance. In Nigerian universities, much has not been done in employing online collaborative tools as innovative tools for learning (Abimbade, 2011). To the best knowledge of the researcher, there are limited studies on how online collaborative tools can be utilized for learning and how it can affect learning rate. It is in the light of this that this study set out to investigate the perception of undergraduate on the utilization of online collaborative tools for learning in selected universities in South-west, geopolitical zone of Nigeria.

Purpose of the Study

The main purpose of this study is to investigate perception of the utilization of online collaborative learning tools by universities undergraduate, in South-West Nigeria. Specifically, this study will:

1. Take inventory of the kind of online accessible tools available for learning among undergraduates in South-west Nigeria;
2. determine the relationship that exists among undergraduates' perceived usefulness, ease of use, attitude and intention to use online collaborative tools for learning;

Research Questions

The study will provide answers to the following research questions:

1. What types of online collaborative tools available for learning among undergraduates in South-West Nigeria?
2. What relationship exists among undergraduates' perceived usefulness, ease of use, attitude and intention to use online collaborative tools for Learning in South-west Nigeria?

REVIEW OF RELATED LITERAURE

Meaning and Relevance of Information Communication Technology in Education

In recent years, there has been an interest on how computers and the internet can best be harnessed to improve the efficiency and effectiveness of education at all level and in both formal and non-formal settings. The emergence of information and communication technology in sustaining Nigeria's standard of education cannot be overruled due to its benefits in the teaching and learning (Suleiman, Onojah, Omoyajowo, & Aderoju, 2017). ICT is an umbrella term that includes any communication devices or application, encompassing radio, television, cellular phones, computer and network hardware and software, satellites systems and as well

as the various services and application associated with them such as video conference and distance learning (Akpan, 2008). The study further emphasize, that the use of ICT has become very important in human life most especially at the present time. ICT has changed the way businesses and industries are conducted and influenced the way people work, interact and function in society (Bhattacharya & Sharma, 2007; UNESCO, 2002). ICT has become common phenomenon at home, at work, and in educational institutions (Kirkup & Kirkwood, 2005). The rapid rate at which new technologies change and develop also implies that higher education systems must keep pace with advancements in knowledge and skills, in addition to the demands and requirements for employees to stay relevant. It is crucial that universities in the region equip their students with the appropriate knowledge, skills and aptitudes to be competitive in an increasingly global and competitive economy. Although, the use of ICT is not the panacea for all the challenges faced by higher education systems in the region, it does leverage and extend traditional teaching and learning activities, and has the potential to positively impact on learning (Jaffer, Ng'ambi & Czerniewicz, 2007).

Furthermore, ICT is becoming increasingly ubiquitous within higher education, and it has been used far beyond enhancing teaching and learning to include promoting research, scholarly community engagement, and administration (Jaffer, 2007). In addition, the integration of ICT in higher education is also moving beyond getting personal computers into the hands of learners and towards mobile technology, virtual world, and cloud computing, among others. Thus, higher education systems has to be innovative and leverage on the developments in ICT to lead by example in using these technologies to provide more accessible, affordable, effective and efficient higher education. The nations and the people in the region are counting on graduates of their higher education systems to be competitive in creating wealth for their respective countries.

Researchers tend to use different terms when referring to the use of ICT in higher education, and some of the common ones include educational technologies, learning technologies, e-learning, online teaching, digital learning objects, communication technologies, web-based learning, hybrid or blended learning and virtual learning environments (Mlitwa 2007; Kirkup & Kirkwood; 2005, Smith, 2004). Blurton (2002) defined ICT broadly as a diverse set of technology tools and resources for communicating, creating, disseminating, storing, and managing information. However, regardless of the terms used, (Mlitwa,2007) linked these terms to knowledge about ICT, ICT as a tool to advance knowledge, or ICT as a domain of knowledge for using ICT as a tool. As a tool, it extends human capabilities to solve

problems, helps students in acquiring knowledge, and assists teachers and administrators in enhancing teaching and learning. Technology also encompasses the knowledge and skills required to effectively use ICT as a tool.

Traditionally, courses in universities have emphasized content and are centered on textbooks. Lecturers taught through lectures and presentations, and tutorials and assignments enabled students to rehearse and consolidate learning (Oliver, 2000).¹⁰⁹ However, current pedagogical orientation and instructional technologies coupled with the pervasive presence of ICT encourage curricula focusing on competency and performance. These curricula emphasize capabilities and place importance on how information is used and, thus, require access to a multitude of information sources and information types. Learning is student-centered and learners require confidence in their core intellectual abilities, such as communication, interpretation, reflection and resolution (Forde, 2007)

The use of ICT in higher education has resulted in a move from teacher-centered delivery and transmissive learning to student-centered learning. ICT functions as information sources and cognitive tools, supporting and enabling students to be responsible for their own learning (Jonassen & Reeves, 1996). Hattangdi and Ghosh (2008) used the terms informative, situating and constructive tools to further define the functions of ICT. Learning environments become inquiry-based and problem-centered within authentic settings. Lecturers are facilitators, coaches and mentors and ICTs support the learning environment (Oliver, 2000).

Meaning, Concepts and Categories of the selected Online Collaborative Tools for Learning

Heritage (2011) defines collaborative as an adjective which means working together towards a common end. Collaborative tools are computer software designed to help people involved in a common task achieve their goals. It is usually associated with individuals not physically co-located, but instead working together across an Internet connection. It can also include remote access storage systems for archiving data files that can be accessed, modified and retrieved by the distributed work group members. Online collaboration tools are web-based applications that offer basic services such as instant messaging for groups, mechanisms for file sharing and collaborative search engines (CSE) to find information distributed within the system of the organization, community or team. Additionally, the functionality is sometimes further expanded by providing integrated online calendars, shared online-whiteboards to organize tasks and ideas or internet teleconferencing integrations. The variety of available online collaboration tools is overwhelming. Their focus ranges from simple to complex,

inexpensive to expensive, locally installed to remotely hosted and from commercial to open source (Kim, 2005).

In recent global development, collaboration has become an essential skill necessary for effective functioning in society. The emergence of Web 2.0 has been heralded as a tool for facilitating collaboration. Examples of Web 2.0 technologies include Twitter, Facebook, MySpace, Wikis, Google Docs, and Blogs, which allow the exchange of thoughts via the Web without restrictions of time or place. One of the most popular Web 2.0 technologies is Wiki, which has shown much promise in promoting communication, collaborative authoring, and information sharing (Parker, 2009; Trentin, 2009). There are many examples of Wiki applications (for instance, Wikidot, Mediawiki, Wiki) that have been spawned since the launch of Wikipedia in 2002. Wikis are characterized by simplicity, accessibility, and interoperability. They combine the functionality of a word processor and a web browser.

As long as a computer with internet access is available, web users are able to create and edit the content of Wiki pages collaboratively without the technical knowledge normally required for writing HTML code. Similar functionality is also provided with Google Docs. Google Docs, another online collaborative tool, is a free web-based application that allows users to create and to share online documents, spreadsheets, presentations, and forms. Similar to Wikis, Google Docs allows concurrent online editing and collaboration for knowledge building by multiple users. These applications have the potential to alter the educational experience of students. In recent years, education has been undergoing a shift from teacher-centered and instruction-based curriculum implementation to student-centered and inquiry-based learning (Chu, 2009).

Students are routinely required to engage in collaborative learning activities such as group projects, presentations, group discussion, and peer evaluation that require significant collaboration and communication with classmates. Among all available online collaborative applications, choosing a suitable online platform to facilitate collaboration with and among students could be a difficult task for a course instructor. The use of Web 2.0 technologies has the potential to harness cyberspace in a more interactive and collaborative manner, increasing individuals' social interactions and active engagement (Murugesan, 2007).

Rollett, Lux and Strohmaier, 2007 described online as an ideal online platform for collaborative projects (Engstrom & Jewett, 2005). The web-based open-editing functions of Wikis allow a relatively low-cost knowledge creation process (Stvilia, Twidale, Smith, & Gasser, 2008). Wikis are easy to use because they do not require

additional software and are easily accessible (Desilets, 2005). Wiki users can create wiki pages and fill them with a variety of content (for example, text, images, graphs, maps). users can then edit the content as needed or desired (Raitman, 2005), while application tracks the revisions made.

Through the use of a wiki, groups of people with a common goal can work collaboratively and simultaneously on a project by jointly creating one single hypertext document. Thus, facilitating knowledge construction (Fuchs-Kittowski & Kohler, 2005). The Wikipedia is perhaps the most influential wiki-based web project. Wikipedia is one of the most commonly used encyclopedias in the world (Richardson, 2004). Thousands of web users have volunteered their time in co-authoring this high-quality encyclopedia in their native language (Tapscott & Williams, 2006). However, unlike any other encyclopedia, Wikipedia is not annually reviewed by appointed reviewers but reviewed when seen fit by peers (Long, 2006). An investigation conducted by Nature in 2005 has shown that information accuracy of Wikipedia came close to the professionally developed Encyclopaedia Britannica in that 162 errors were found in Wikipedia while 123 errors were identified in Encyclopaedia Britannica (Leadbeater, 2009).

The characteristics of a wiki as a shared tool fit well with the processes associated with collaborative learning and knowledge management. In the education domain, web-based environments are used for joint problem-solving, knowledge building and sharing (Nevgi, 2006) where learners are able to practice, collaborate, reflect critically, negotiate, and build consensus similar (but not the same) to that of a face-to-face setting (Liaw, Chen, & Huang 2008). Applications of Wikis also involve aspects of course management and support distance education (Chao, 2007; Parker & Chao, 2007; Bold, 2006), while the use of a constructivist pedagogy has resulted in considerable benefits to students (Richardson, 1998). Previous research in education has focused on four major areas: the rationale for using wikis, collaborative learning and writing, knowledge building and management, and sharing and structuring of information (Chu, 2009; Chu, 2008; Bruns & Humphreys, 2007; Bold, 2006; Changwatchai, 2005).

The literature provides evidence that wikis provide useful platforms for collaborative learning activities at different education levels and in different subject areas (Lamb & Johnson, 2010), including heightened accessibility and effective collaboration between tertiary students through their use (Bold, 2006). For example, Augar, Raitman, and Zhou (2004) utilized Media-Wiki to enhance social interaction with an icebreaker assignment. Bruns and Humphreys (2005) also adopted Media Wiki for developing an encyclopedia in an undergraduate course to provide a non-

linear approach at documenting the multi-faceted evolution of new media technologies. Such collaborative work experience possibly helps enhance students' critical thinking skills and creativities, which are essential abilities for excelling in their future workplaces of this networked economy.

Undergraduate Student Perception on Utilisation of Online Collaborative Tools for Learning

Collaborative tools, integrating a variety of media to deliver teaching material to students is increasingly prevalent in university education. Collaborative learning tools is often associated with the use of web tools such as email, lecture recordings, blogs, discussion boards, and a dedicated university learning management system (for example Blackboard). Institutional based learning management systems are being used by universities all over the world. These systems are often designed to provide a web presence for course instruction and assist with the organisation and management of course material (Coates, James & Baldwin, 2005).

Typically, they propose to offer an environment that helps to engage students and enrich the quality of the student experience through interactive learning activities. In general, they are designed to support the development, management, and delivery of blended learning. However, there are some suggestions that whilst learning management systems are well developed to manage processes such as student enrolment, exams, assignments, course descriptions, lesson plans, messages, syllabus, and basic course material, they are not well suited to self-governed and problem-based learning activities (Dalsgaard, 2012).

In addition, these programs often lack an element of social connectivity and the personal profile spaces which today's students are familiar with (Mazman & Usluel, 2010). The emergence of collaborative software and popular networking sites such as Facebook, blog, wikki, Flicker, goggle apps have raised questions regarding the value of course integrated learning management systems. Social networks have the potential to offer better support for self-governed, problem-based and collaborative learning processes (Dalsgaard, 2006). Facebook, blog wikki and other collaborative tools is a website that allows users to interact and collaborate within a pre-defined virtual community. Often termed a social networking site, collaborative tools are an online communication tool allowing users to construct a public or private profile in order to connect and interact with people who are part of their extended social network (Boyd & Ellison, 2007).

Theoretical Framework on Utilization of Online Collaborative Tools for Learning

Several theories were developed to explain user intention of the new technology that has been recognized since the mid-1980s. Among the theories, the most popular and influential such as the Theory of Reasoned Action (TRA) that was proposed by Fishbein and Ajzen (1981), Technology Acceptance Model (TAM) proposed by Davis

(1989) as cited by Ahmed (2013), Theory of Planned Behaviour (TPB) proposed by Ajzen (1985), Innovation Diffusion Theory (IDT) proposed by Rogers (1995) as cited by Archana (2011), extended TAM or TAM2 by Venkatesh and Davis (2000) and most recently, the Unified Theory of Acceptance and Use of Technology model (UTAUT) (Venkatesh, Morris, Gordon & Davis, 2003).

The Unified Theory of Acceptance and Use of Technology model (UTAUT) theory majorly seeks to explain the intentions of individual in the use of new technological innovation and their subsequent usage behaviour. Meanwhile, the theory believes strongly in the following key constructs such as performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003 as cited by Stigzelius, 2011). They further added that the aforementioned are the major determinants of information system usage intention and usage behaviour (Venkatesh et al., 2003 as cited by Stigzelius, 2011). The authors are also of the view that gender, age, experience and voluntariness of use play pivotal role in moderating the impact of the four key constructs on usage intention and behaviour.

The Unified Theory of Acceptance and Use of Technology (UTAUT) model is widely acceptable and used in the field of information and communication technology (ICT) in modelling the acceptance of new technology innovation for which it was developed by Venkatesh et al., (2003) as cited by Stigzelius (2011). UTAUT is capable of explaining 70% of technology acceptance behaviour (Masrom & Hussein, 2008).¹⁰⁶ Other variables such as gender, age, experience and voluntariness of use moderate the key relationships in the model (Venkatesh et al., 2003 as cited by Stigzelius, 2011). The model is therefore shown in figure 2:

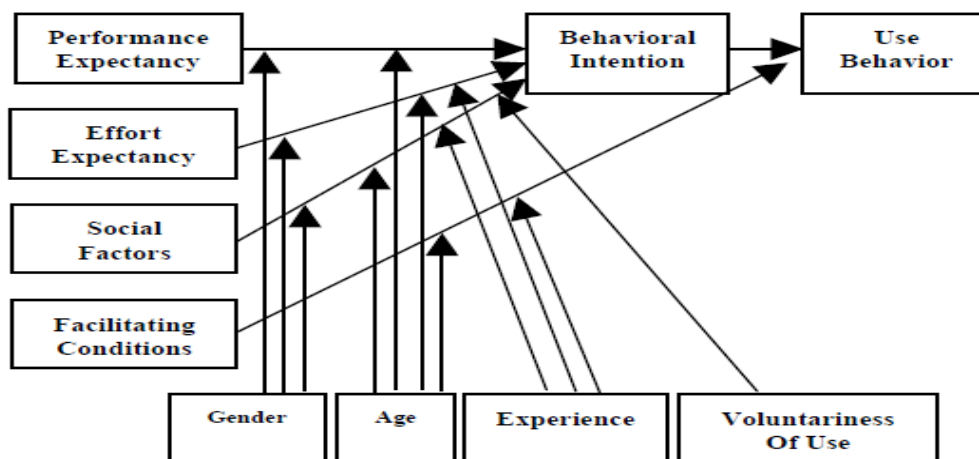


Figure 1: Unified Theory of Acceptance and Use of Technology (UTAUT) Model.

Source: Venkatesh et al., (2003 p.447).

Venkatesh et al., (2003) as cited by Stigzelius (2011) defined the major key concept as follows: performance expectancy: which connote the extent to which an individual believes that using a technology will assist him/her to make profit in job performance (Venkatesh et al., 2003 as cited by Stigzelius, 2011); Effort expectancy, which has to

do with the degree of ease of use that is associated with the technology (Venkatesh et al., 2003 as cited by Stigzelius, 2011); Social influence: is the extent to which an individual perceives that others believe he or she should use the new technology (Venkatesh et al., 2003 as cited by Stigzelius, 2011); Facilitating conditions, which is "the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system" (Venkatesh et al., 2003,); behavioural intention, which is "the person's subjective probability that he or she will perform the behaviour in question" (Venkatesh et al., 2003, p. 288).

UTAUT's major advantage is that it demonstrates a large extent of superior strength. This is however, capable of explaining up to 70% of variance of intention to use technology (Masrom & Hussein, 2008). Unified Theory of Acceptance and Use of Technology critically examine the voluntariness of use and facilitating factors. Moreover, UTAUT has the advantage of including a distinction between mediating and determining factors.

According to Straub (2009) who considered the limitation of UTAUT's theory concluded that it is a relatively new theoretical framework that needs additional research to replicate its findings, validate its measures, and validate its robustness. In the same manner, while UTAUT has been validated in subsequent Information System Research, there are still other areas open for further research to address technology that may fall within the 30% unexplained acceptance (Baron, Patterson & Harris, 2006), and account for invariance of the UTAUT scales across different cultures, sub populations and self-management of learning (Pu, Li & Kishore, 2006; Venkatesh, et al., 2003 as cited by Stigzelius, 2011).

METHODOLOGY

This chapter presents the methods and procedures that was employed in the process of collecting data for this research. It will be presented under the following sub-headings: Research Design, Sample and Sampling Technique, Research Instrument, Validation of Research Instrument, Procedures for Data Collection and Data Analysis Techniques.

Research Design

This study is a descriptive research using cross-section survey method. The study is descriptive in the sense that the research describes events as they appear without any manipulation. A researcher-designed questionnaire was used to collect information from the respondents on the Perception of Undergraduates on the utilisation of Online Collaborative Tools for learning in selected Universities in South-West,

Nigeria. Survey method was chosen for the study because it enabled the researcher to gather large amount of information on Undergraduates' perception of collaborative tools for learning.

Sample and Sampling Techniques

The population for the study consists all the university undergraduate students in the South-western States of Nigeria. The target population for this study were all undergraduates' students of the Faculty of Science and Education in all Federal and State universities in South-west Nigeria. Specifically, the sample was purposively selected from the two faculties in the selected Universities in South-west Nigeria. Respondents were limited to Federal and state universities in the south-west, Nigeria. Undergraduate students in private Universities were not contacted as they may be restricted to give out vital information regarding their institution therefore the researcher may not be sufficiently elicited information from the respondents in such universities when contacted.

Research Instrument

The instrument for this study was a questionnaire adapted from the previous studies of Lund (2001)¹⁰⁶, Moon, Ji-won and Kim (2001)¹⁰⁶ and Olasedidun (2014).¹⁰⁸ The questionnaire titled perception of undergraduates on the utilisation of online collaborative tools for learning. Items were selected based upon their relevance to perceived usefulness, perceived ease of use, attitudes toward use and intention to use online collaborative tools for learning.

The questionnaire was chosen as instrument because of its usefulness as a tool for gathering data from a large number of respondents in a relatively short period. It was structured in a clear and simple language, this enabled the respondents to provide relevant answers to the questionnaire based on their personal perception.

The questionnaire consists of three sections: section I, II and III. Section I comprised information on respondent's bio-data which include: universities (Federal and State), gender (Male or Female) and Faculty, Department and their level. Section II focused on the online collaborative tools available for learning. Twenty (22) online collaborative tools were listed for respondents to choose the one(s) available for them. Respondents ticked the available online collaborative tools for learning. Section III consists of subsections of A, B, C, D, and E. it found out if the undergraduates engage online collaborative tools for learning and where undergraduates in South-west access online collaborative tools for learning.

Data Analysis Techniques

The analysis of data that was gathered through the questionnaire was done using descriptive and inferential statistics. The frequencies were converted to mean to answer the research questions. Hypothesis one was tested using multiple regression analysis. This is because it found out whether there were significant relationships among many variables such as perceived usefulness, perceived ease of use, attitude and intention. Hypotheses two to five were tested using t-test to find out significant differences between male and female undergraduates, while hypotheses six to nine were tested using ANOVA to find out significant differences between federal, and state universities undergraduates. All hypotheses were tested at 0.05 level of significance.

Data Analysis and Results

This chapter presents the analysis and results obtained from the data gathered based on research questions and hypotheses stated in chapter one. The data presented provides a summary of the major characteristics of the respondents that were involved in the study. The questionnaire was directed to the respondents to ensure that necessary information was captured and measured accurately. Out of the 1534 copies of questionnaire that was administered, 1412 were properly filled and returned at a return rate of 92%. This was further used for the analysis in this study.

Results of the Research Questions

Research Question One: What types of online collaborative tools are available for learning among undergraduates in South-West Nigeria?

Table 1: Available Online Collaborative Tools for Learning

| S/N | Online Collaborative Tools | AVAILABLE | | NOT AVAILABLE | | Total |
|-----|----------------------------|-----------|-------|---------------|-------|----------------|
| | | N | % | N | % | |
| 1. | Facebook | 1322 | 93.6% | 90 | 6.4% | 1412 (100%) |
| 2. | Google Plus (Google +) | 986 | 69.8% | 426 | 30.2% | 1412 (100%) |
| 3. | To Go | 746 | 52.8% | 666 | 47.2% | 1412 (100%) |
| 4. | Twitter | 1078 | 76.3% | 334 | 23.7% | 1412 (100%) |

| | | | | | | |
|-----|-------------|------|-------|------|-------|----------------|
| 5. | Flicker | 650 | 46.0% | 762 | 54.0% | 1412 (100%) |
| 6. | You Tube | 983 | 69.6% | 429 | 30.4% | 1412 (100%) |
| 7. | Digg | 429 | 30.4% | 983 | 69.6% | 1412 (100%) |
| 8. | Technorah | 439 | 31.1% | 973 | 68.9% | 1412 (100%) |
| 9. | Scribd | 500 | 35.4% | 912 | 64.6% | 1412 (100%) |
| 10. | Rogo | 463 | 32.8% | 949 | 67.2% | 1412 (100%) |
| 11. | Hi5 | 621 | 44.0% | 791 | 56.0% | 1412 (100%) |
| 12. | Linkedin | 1028 | 72.8% | 384 | 27.2% | 1412 (100%) |
| 13. | Bebo | 456 | 32.3% | 956 | 67.7% | 1412 (100%) |
| 14. | Friendster | 503 | 35.6% | 909 | 64.4% | 1412 (100%) |
| 15. | Orkut | 411 | 29.1% | 1001 | 70.9% | 1412 (100%) |
| 16. | Myspace | 868 | 61.5% | 544 | 38.5% | 1412 (100%) |
| 17. | Blogger.com | 884 | 62.6% | 528 | 37.4% | 1412 (100%) |
| 18. | Ning | 500 | 35.4% | 912 | 64.6% | 1412 (100%) |
| 19. | Twoo | 482 | 34.1% | 930 | 65.9% | 1412 (100%) |
| 20. | Slideshare | 658 | 46.6% | 754 | 53.4% | 1412 (100%) |
| 21. | Vimeo | 498 | 35.3% | 914 | 64.7% | 1412 (100%) |
| 22. | What's Aps | 1226 | 86.8% | 186 | 13.2% | 1412 (100%) |

The types of online collaborative tools are available for learning among undergraduates in South-West Nigeria was investigated and the results were presented in table 8. Out of the 1412 respondents, 1322 (93.6%) had Facebook while 90 (6.4%) do not have Facebook as online collaborative tools. Google Plus (Google +) is available to 986 (69.8%) but not available to 426 (30.2%). Also, To-Go is available to 746 (52.8%) while is not available 666 (47.2%). Twitter is available to 1078 (76.3%) respondents but not available to 334 (23.7%) respondents. 650 (46.0%) respondents had Flickr online collaborative tools while 762 (54.0%) do not have. You Tube is available to 983 (69.6%) respondents and not available to 429 (30.4%) respondents. Digg is available to 429 (30.4%) respondents but not available to 983 (69.6%) respondents. 439 (31.1%) respondents had Technorah while 973 (68.9%) respondents do not have Technorah. Scribd is available to 500 (35.4%) but not available to 912(64.6%) respondents.

Furthermore, Rogo is available to 463 (32.8%) respondents but not available to 949 (67.2%) respondents. Hi5 is also available to 621 (44.0%) respondents but not available to 791 (56.0%). 1028 (72.8%) respondents had LinkedIn but 384 (27.2%) do not have LinkedIn online collaborative tools. Bebo is available to only 456 (32.3%) respondents but not available to 956 (67.7%) respondents. Friendster is also available to 503 (35.6%) respondents but not available to 909 (64.4%) respondents. Orkut is available to 411 (29.1%) respondents but not available to 1001 (70.9%) respondents. Myspace is available to 868 (61.5%) respondents but not available to 544 (38.5%) respondents. Blogger.com is available to 884 (62.6%) respondents but not available to 528 (37.4%) respondents. Ning is available to 500 (35.4%) respondents but not available to 912 (64.6%) respondents. Twoo is available to 482 (34.1%) respondents but not available to 930 (65.9%) respondents. Also, Slideshare is available to 658 (46.6%) respondents but not available to 754 (53.4%) respondents.

Moreover, the findings established that Vimeo is available to 498 (35.3%) respondents but not available to 914 (64.7%) respondents. 1226 respondents with a percentage of 86.8% had What's Aps online collaborative tools and 186 respondents with a percentage of 13.2% do not have What's Aps online collaborative tools. On the whole it can be established from the findings that majority of the respondents had the following online collaborative tools: Facebook, Google Plus (Google +), To Go, Twitter, You Tube, LinkedIn, Myspace, Blogger.com and What's Aps.

Research Question Six: What relationship exists among undergraduates’ perceived usefulness, ease of use, attitude and intention to use online collaborative tools for Learning in South-west Nigeria?

Table 2: Relationship among undergraduates’ perceived usefulness, ease of use, attitude and intention to use online collaborative tools for Learning

| <i>Variables</i> | | Perceived usefulness of online collaborative tools for learning | Perceived ease of use of online collaborative tools for learning | Attitudes towards the use of online collaborative tools for learning | Intention to use online collaborative tools for learning |
|---|---------------------|---|--|--|--|
| <i>Perceived usefulness of online collaborative tools for learning</i> | Pearson Correlation | 1 | .479** | .138** | .106** |
| | Sig. (2-tailed) | | .000 | .000 | .000 |
| | N | 1412 | 1412 | 1412 | 1412 |
| <i>Perceived ease of use of online collaborative tools for learning</i> | Pearson Correlation | .479** | 1 | .057* | -.044 |
| | Sig. (2-tailed) | .000 | | .033 | .099 |
| | N | 1412 | 1412 | 1412 | 1412 |
| <i>Attitudes towards the use of online collaborative tools for learning</i> | Pearson Correlation | .138** | .057* | 1 | .734** |
| | Sig. (2-tailed) | .000 | .033 | | .000 |
| | N | 1412 | 1412 | 1412 | 1412 |

| | | | | | |
|---|---------------------|--------|-------|--------|------|
| <i>Intention to use online collaborative tools for learning</i> | Pearson Correlation | .106** | -.044 | .734** | 1 |
| | Sig. (2-tailed) | .000 | .099 | .000 | |
| | N | 1412 | 1412 | 1412 | 1412 |

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

The relationship that exists among undergraduates’ perceived usefulness, ease of use, attitude and intention to use online collaborative tools for Learning in South-west Nigeria was investigated and the results presented in table 13. It indicated that positive relationship exists among undergraduates’ perceived usefulness, ease of use, attitude and intention to use online collaborative tools for Learning in South-west Nigeria.

Discussion of Research Findings

The types of online collaborative tools available for learning among undergraduates in South-West Nigeriawere investigated using research question 1. Such collaborative tools includeFacebook, Google Plus (Google +), 2Go, Twitter, You Tube, LinkedIn, Myspace, Blogger.com and WhatsApp among others. The result of the mean score established that online collaborative tools are available for learning among undergraduates. This findings agreed with the previous findings of(Parker,2009; Trentin, 2009) whose findings established that collaborative tools such as Twitter, Facebook, MySpace, Wikis, Google Docs, and Blogswhich allow the exchange of thoughts via the Web without restrictions of time or place . The author further reiterated that global development, collaboration has become an essential skill necessary for effective learning. Thisfindings also concur with earlier findings of (Engstrom & Jewett, 2005) whose findings established that web-based open-editing functions of collaborative tools such as Wikis allow a relatively low-cost knowledge creation process.

Relationship among undergraduates’ perceived usefulness, ease of use, attitude and intention to use online collaborative tools for learningwas examined using research question 6 and hypothesis1.The result of the mean score revealed that positive relationship exists among undergraduates’ perceived usefulness, ease of use, attitude and intention to use online collaborative tools for Learning in South-west Nigeria. The result of the hypothesis also revealed a statistical significant relationship among

undergraduates' perceived usefulness, ease of use, attitude and intention to use online collaborative tools for learning in South-west Nigeria.

This findings is consistent with the earlier findings of (Davis, et al., 1993) whose findings revealed that perceived usefulness and perceived ease of use on the individual level, are determining factors on an individual's acceptance of information system . The author further revealed that there is a significant relationship between the attitude and behavioural intention to use technology this connote that all things being equal, people form intentions to perform behaviours toward that which they have positive affect. Undergraduate's students' perceptions of the usefulness of online collaborative tools for learning based on gender in South-west Nigeria was examined by research question 7 and hypothesis 2. The result of the mean score established a difference in the Perceived Usefulness of online collaborative tools for learning between male and female Undergraduate Students in favour of the female students. The results of the t-test analysis established no significant difference between male and female on their perceived usefulness of online collaborative tools for learning.

Implication of the Findings

Based on the findings of the study, the following implications can be drawn:

The findings have strong implications for the teaching learning process in Nigeria. It is an indication that there would be great improvement in the teaching and learning at the University level if collaborative tools could invariably be integrated into teaching and learning.

If collaborative tools is incorporated into teaching, it can lead to increased teaching competencies in the lecturers as well as enhancing the lecturers' confidence, interaction and involvement of the students in collaborative learning. The rigour of the talk and chalk method inherent in the traditional teaching and learning could be done away with.

The result in the study also showed that there was no gender influence on the undergraduates' perceived usefulness, ease of use, attitude and intention to use collaborative tools for learning. The implication of this is that ICT-Based instructional strategy like collaborative tools can improve learning of both male and female undergraduates equally and minimize gender discrepancies in the learning process.

Conclusions

This research explored the relationship among lecturers' perceived usefulness, ease of use, attitude and intention towards collaborative tools in South-West Nigeria. The result obtained from data gathered and analyzed in this study indicated that the perception of undergraduates toward the usefulness of collaborative tools for

learning was positive. It also showed that the undergraduates positively perceived the ease of use of collaborative tools for learning.

The findings in the research also established that Male students have positive attitude towards the use of online collaborative tools for learning more than female Undergraduate Students. Also, the intention of undergraduates to use collaborative tools for learning was found to be positive. The result as well showed that there was a significant relationship between undergraduates students' perceived usefulness, ease of use, attitude and intention to use collaborative tools for learning. The significant relationship was evident when each of the variables was used as dependent variable and others used as independent variables.

Recommendations

Based on the findings and conclusions of this study, the following recommendations were made:

Government should give the necessary supports on the procurement of all needed collaborative facilities. This could be in form of free excise duty, reduction in their prices and free supply of the facilities into higher institutions. This will encourage all undergraduates to embrace its integration;

Undergraduates should help themselves by exhibiting high competencies in the utilisation of collaborative tools for cooperative learning; government and policy makers in education should endeavour to introduce the use of collaborative tools into university education curriculum in the universities so that both the lecturers and students will be using it for instructional purposes; and finally government should formulate workable ICT policy that will be friendly to all levels and categories of educational programme, universities not being left out;

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