

INVESTIGATING POST GRADUATE STUDENTS ATTITUDE TOWARDS ADOPTING WEB 2.0 TECHNOLOGIES FOR COLLABORATIVE LEARNING

Fomsi Esther, F., Nwosu Ebere Hope, Gladys Charles-Ogan

Department of Curriculum Studies/Educational Technology, Faculty of Education, University of Port Harcourt, Nigeria

ABSTRACT: *The study investigated post graduate students attitude towards adopting web 2.0 technologies for collaborative learning. The research design was survey research. The sample size was thirty postgraduate students from the Department of Curriculum studies and Educational Technology, Faculty of Education, University of Port Harcourt, Nigeria. One instrument was used to collect data from the samples namely: Post Graduate Students Readiness for Web 2.0 (POGSTR WEB 2.0). The instrument was subjected to face and content validity by two experts in test and measurement and three experts in information and communication technology. The estimated value of the reliability coefficient was.713. Three research questions and one hypothesis were used for the study. Simple percentages were used to answer the research questions while Pearson moment correlation was used to test the hypothesis. The findings revealed that android phone is the most common technology device owned by post graduate students with a percentage of (53.3%), followed by laptop and desktop with percentages of 33.3% and 26.7% respectively. Also 50% of the sampled students possess high technology competencies and the other 50% had low technology competencies. The correlation coefficient of 0.51 showed a positive but weak correlation between postgraduate students' technology competencies and their attitude towards the adoption of web 2.0 technologies for collaborative learning, which implied that post graduate students with high technology competencies, would have a near tendency towards adopting web 2.0 technologies and vice-versa.*

KEYWORDS: Web 2.0 Technologies, Collaborative Learning

INTRODUCTION

Internet technologies today have totally transformed every sphere of human life. In the area of health care, technology is used to diagnose several ailments, treat and also prevent illnesses (Moran, 2013). In business, use of Internet technologies provides network for business partners to communicate, for companies to advertise and even market their products. In education, Internet technologies have transformed the traditional classroom. Information and Communication Technologies (ICTs) have created a knowledge-based global society which has changed the status of education. They have equally transformed the roles of students and teachers in the learning process creating a shift from teacher-centered to learner-centered learning environments. Web 2.0 happens to be a new wave of Internet technologies that have emerged. They have added value to the traditional delivery system and have enhanced collaboration among students. Web 2.0 technologies have made the learning environments more interactive and engaging for teachers and learners.

Collaborative learning

This refers to an instructional method where students are required to work together on solving a problem or completing a learning task. Students are mutually engaged in a coordinated effort to solve a problem together or to acquire new knowledge (Lehtinen, Hakkarainen, Lipponen, Rahikainen, and Muukkonen 1999). Education Portal (2003-2014) defines collaborative learning as an educational method where two or more students work together to learn. It is generally believed that when students work in groups, they can learn more from each other through sharing and social interaction than if they learned individually (Education Portal, 2003-2014). Smith and Macgregor (1992:1) see collaborative learning as “an umbrella term for a variety of educational approaches involving joint intellectual effort by students, or students and teachers together. Usually, students are working in groups of two or more, mutually searching for understanding, solutions, or meanings, or creating a product”. In collaborative learning students take full responsibility for their learning. They work together, and build knowledge together, which results in increased knowledge and improved development of the learner (Dooly, 2008).

The similarity between these definitions is that collaborative learning involves students working in groups so as to promote social interaction and increase knowledge. Thus for this study we would define collaborative learning as an instructional method which involves small groups of students working cooperatively to achieve a learning outcome or complete a task. This type of learning promotes communication and interdependence between students, which is compliant with today’s 21st century knowledge sharing and distribution. Web 2.0 technologies serve as a good platform for such knowledge sharing.

Web 2.0 Technologies

Dictionary.com (2014) defines web 2.0 as “a second generation in the development of the World Wide Web, conceived as a combination of concepts, trends, and technologies that focus on user collaboration, sharing of user-generated content, and social networking”. It is characterized by more interactivity, communication and collaboration, which stands in sharp contrast with the earlier version of the World Wide Web, known as Web 1.0. The latter was known as the static web because it only allowed users to read, receive and research information. Users were passive. They could only read from such web pages and consume the information in it but could not make valuable contributions. Web 2.0 however, transformed the World Wide Web and made users not passive but active participants of the web. Communication on the web became more interactive. Users could now develop the 4 Cs (contributing, collaborating, creating and critical thinking) (Eteokleous-Grigoriou and Ktoridou 2013). Anderson, (2012) posits that there are over 3000 free to use flexible applications that are described as Web 2.0. Because these applications are flexible, different users can use them in different ways. They utilize individual and group contributions to create value. Web 2.0 technologies are very effective in education because they allow group collaboration through open communication with an emphasis on Web-based communities of users, and more open sharing of information. Users are able to add value to their team work through comments posted on relevant sites. Thus learners are able to acquire skills and attitudes by creating and offering content to the open world. Web 2.0 technologies open learning beyond the closed doors of the classroom (Anderson, 2012). User-generated sites such as Wikipedia and other Open Educational Resources (OERs) have created opportunities for students and learners to share intellectual contributions. Because interaction plays a major function in education, Web 2.0 technologies

become very necessary. Examples of Web 2.0 technologies include blogs, forum, wikis, media sharing sites and social networking sites just to mention few.

Two theories serve as a basis for this study. These are Vygotsky's sociocultural theory and Siemens' theory of connectivism.

Socio-cultural theory is associated with Vygotsky (1978). This theory is relevant for this study because it emphasizes cognitive development through social interactions and the use of web 2.0 technologies provides a platform for such social interactions.

Vygotsky used the term MKO to refer to anyone who has a better understanding or a higher ability level than the learner, with respect to a particular task, process, or concept. It could be a teacher, coach, or older adult, but the MKO could also be peers, a younger person, or even computers (Drew, 2012). The zone of proximal development (ZPD) is the difference between an individual's current level of development and his or her potential level of development. It is considered to be the distance between a student's ability to perform a task under adult guidance and/or with peer collaboration and the student's ability to solve problems independently. Vygotsky believes that there are two levels of learning. The first level (blue area) is the level of development the learner has already reached – the level at which he/she can solve problems independently (see fig 1). At this level, the learner can accomplish any task given to him without help from any one. The second level (Purple area) is the level where a learner has the potential to accomplish a task or solve a problem if he gets help from others (see fig 1). At this level, what the learner needs is structure, clues, reminders, help with remembering details, encouragement e.t.c. This is the level that Vygotsky calls the ZPD. Under the guidance of teachers or in collaboration with peers, learners can solve problems and accomplish tasks in the ZPD. This collaboration continues until the learner can solve that problem independently.

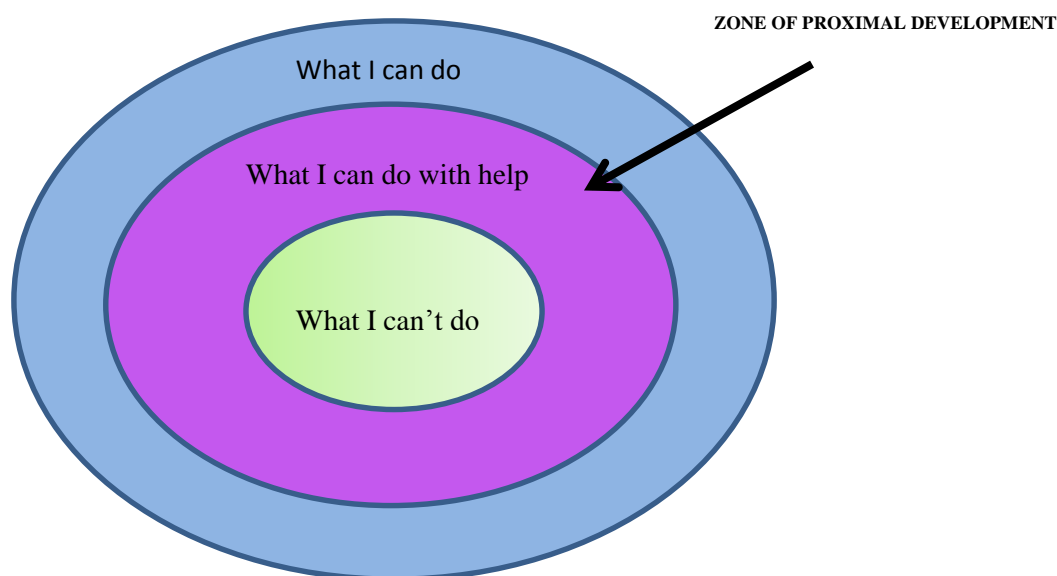


Fig. 1 Diagram showing the Zone of proximal development

Adapted from Innovative learning .com (2013)
(<http://www.instructionaldesign.org/theories/social-development.html>)

Web 2.0 technologies support collaborative learning in order to help students develop social skills that would be very effective. ICTs can provide the necessary tools that can be used to scaffold students' cognitive development. Thus the three themes that make up Vygotsky's socio-cultural theory namely social interaction, more knowledgeable other (MKO) and the zone of proximal development (ZPD) can be fully addressed with the application of Web 2.0 technologies.

Connectivism is a theory developed by Siemens in 2005. It is called the learning theory for the digital age. It is a theory that integrates social learning with social media technologies. This theory is very important for this study because connectivism relies on sharing (connection) and web 2.0 technologies provide a platform for such sharing. These technologies enhance connections between people and ideas. The central theme of connectivism is that knowledge is formed by creating connections between various nodes in a network. The idea of networks is derived from computer networks where a node usually refers to computers, cables, hubs and other accessories that are interconnected to form a local area network (LAN) (see fig 2).

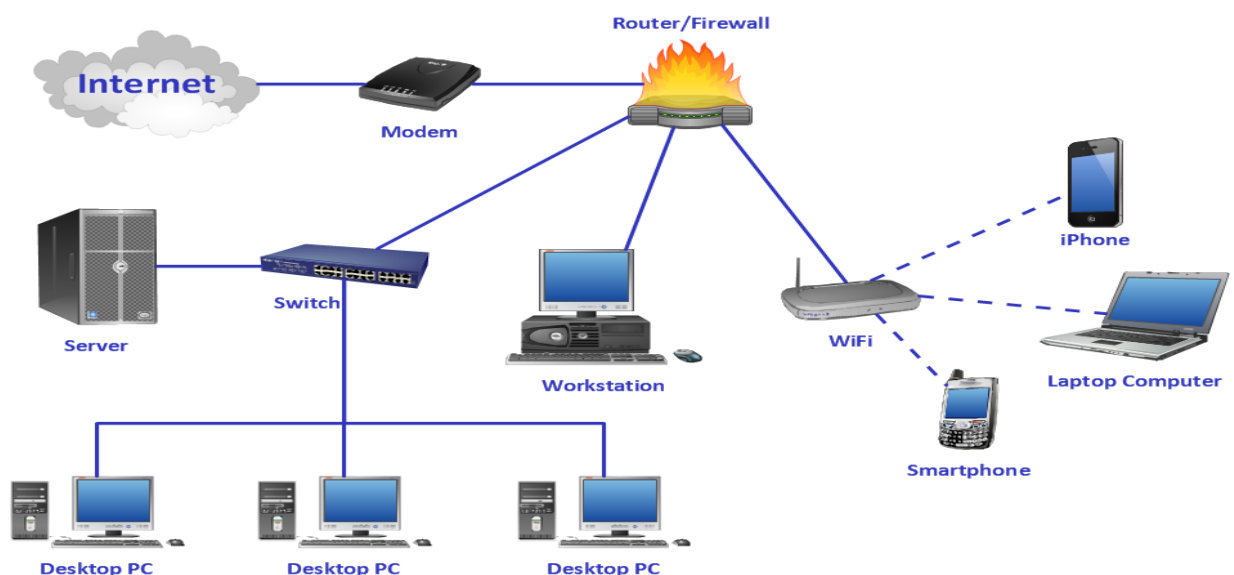


Fig 2 A picture of a computer network

Source: <https://conceptdraw.com/a883c3/p1/preview/640/pict--network-system-design-computer-network-system-design-diagram>

For the LAN to function properly, all these nodes must be properly connected and work together as one unit. If the connection between nodes is well established, this enhances the performance outcome of each node which turns out better than when the device is used independently. Importing the idea of networks into education implies that learning is no longer an internal, individualistic activity. Rather, learners gather information from connecting to other people's knowledge using Web 2.0 technologies and other similar applications (Chen and Bryer, 2013). Connectivism emphasizes the idea that knowing where to find knowledge is as important as the knowledge itself as knowledge is always evolving with concepts being born or becoming obsolete (PBworks, n.d.). It asserts that knowledge and learning are not about

content, but connection. For the learner to be connected to this outside knowledge is more important than his or her existing state of knowing.

Since connectivism as a theory relies on sharing (connection), then any form of technology that allows for sharing becomes very vital. Web 2.0 technologies come in handy in this regard because they allow users to make connections and convey knowledge using social networks such as Twitter, Facebook, and others. With Web 2.0 applications, students can connect to different pieces of information and create new information that could be shared with others (Maloney, 2007 cited in Ajjan and Hartshorne 2008). Connectivism as a theory would be best applied in the classroom through group work and class discussion. The teacher would need to act as a facilitator allowing students to acquire knowledge and determine between facts and fiction through their interactions with one another. One of the principles of connectivism is that capacity to learn is more critical than what is currently known (Siemens, 2004 cited in Chen and Bryer, 2013). The responsibility of a teacher is not just to define, generate, or assign content, but it is to help learners build learning paths and make connections with existing and new knowledge resources (Anderson and Dron, 2011 cited in Chen and Bryer, 2013). Web 2.0 provides the right instructional platform that allows learners to connect to others and explore educational resources. The theory of connectivism provides insight on the roles of educators in a social networked environment (Chen and Bryer, 2013). The proliferation of social networks have caused teachers and learners to embrace this new technology to connect to knowledge for use in the classroom (Duke, Harper and Johnston, 2013).

Problem of the Study

The researchers have observed that most post graduate students do not use Web 2.0 technologies for academic work. They only use it for entertainment and socializing. Thus the researchers sought to investigate the attitude of post graduate students towards the use of Web 2.0 technologies for collaborative learning.

Purpose of the Study

The purpose of this study is to investigate post graduate students attitude towards adopting web 2.0 technologies for collaborative learning. The study specifically aims to:

1. Determine the type of technology devices owned by post graduate students that support the use of web 2.0 technologies for collaborative learning.
2. Determine the technology competencies possessed by post graduate students for the adoption of web 2.0 technologies for collaborative learning.
3. Determine the attitude of post graduate students towards adopting web 2.0 technologies for collaborative learning

Research Questions

1. What type of technology devices that support web 2.0 technologies are owned by post graduate students?
2. What technology competencies are possessed by post graduate students for the adoption of web 2.0 technologies for collaborative learning?
3. What is the attitude of post graduate students towards adopting web 2.0 technologies for collaborative learning?

Hypothesis

The following research Hypothesis guided this study.

- H0:1 there is no significant relationship between post graduate students technology competencies and their attitude towards the use of web 2.0 technologies for collaborative learning.

METHODOLOGY

The sample of the study comprised 30 post graduate students from the Department of Curriculum Studies and Educational Technology, Faculty of Education, University of Port Harcourt, Nigeria who have offered the course Computer in Education. The instrument for data collection was a questionnaire titled “Post Graduate Students Readiness for Web 2.0 (POGSTR WEB 2.0)”. This was designed by the authors. The face and content validity of the instrument was established by giving the instruments to two experts in test and measurement and three experts in information and communication technology. The internal consistency of the instrument was established using the split half method and the reliability coefficient obtained was .713. Research questions one and two were answered using simple percentages while research question three along with its corresponding hypothesis was analysed using correlation.

RESULTS/FINDINGS

Research Question 1: What type of technology devices that support web 2.0 technologies are owned by post graduate students?

Table 1: Technology devices owned by post-graduate students

S/N	DEVICES	FREQUENCY	PERCENTAGE (%)
1	Android phone	16	53.3
2	Windows Phone	3	10.0
3	Nokia Smart Phone	6	20
4	Ipad	3	10
5	Iphone	6	20
6	Tablet	2	6.7
7	Blackberry	1	3.3
8	Laptop	10	33.3
9	Desktop	8	26.7

*Multiple responses recorded.

The table above shows that android phone is the most common technology device owned by post graduate students with a percentage of (53.3). This is followed by laptop with a percentage of 33.3% and desktop with a percentage of 26.7%. Nokia smartphone and Iphone both have a percentage of 20%. Other devices are less than 20%.

Research Question 2: What technology competencies are possessed by post graduate students for the adoption of web 2.0 technologies for collaborative learning?**Table 2: Technology devices owned by post-graduate students**

S/N	COMPETENCE SCORE	FREQUENCY	PERCENTAGE (%)
1	6-9 (low competence)	15	50
2	10-12 (high competence)	15	50

The table above shows that fifty percent (50%) of the post graduate students possess the technology competencies needed for the adoption of web 2.0 technologies for collaborative learning while 50% of the students have low technology competencies.

Research Question 3: What is the attitude of post graduate students towards adopting web 2.0 technologies for collaborative learning?

Research hypothesis: There is no significant relationship between post graduate students technology competencies and their attitude towards the use of web 2.0 technologies for collaborative learning.

Table 3: Correlations of the relationship between postgraduate students' attitude and their competencies

	ATTITUDE	COMPETENCIES
Pearson Correlation	1	.051
Sig. (2-tailed)		.790
N	30	30
Pearson Correlation	.051	1
Sig. (2-tailed)	.790	
N	30	30

The table above shows that the result is significant. However the correlation coefficient of 0.51 shows that there is a positive but weak correlation between postgraduate students' technology competencies and their attitude towards the adoption of web 2.0 technologies for collaborative learning. This implies that post graduate students with high technology competencies would have a near tendency towards adopting web 2.0 technologies and those with low competencies would likely not want to adopt web 2.0 technologies for collaborative learning. The probable reason for the result above could be that the use of web 2.0 for academic learning is still a novel idea among these students. Most post graduate students use these technologies for social interactions with their family, friends, and colleagues; but have not been using it for collaboration in academic work. This could explain the weak correlation between the variables analysed above.

CONCLUSION

Web 2.0 technologies enable the development of a skill set that is compliant with 21st century knowledge sharing and distribution and should be encouraged among students. There should be an awareness campaign organized for students to intimate them with the advantages of adopting these technologies for their academic development. This would motivate them to enhance their technology competencies and join the ICT train.

RECOMMENDATIONS

School Administrators and other stakeholders should organize training sessions and workshops to intimate teachers on various instructional pedagogies especially those that are compliant with the digital world we live in.

REFERENCES

- Ajjan, H. & Hartshorne, R. (2008) Investigating faculty decisions to adopt web 2.0 technologies: Theory and empirical tests. *Internet and Higher Education* 11 (2008) 71-80. doi:10.1016/j.iheduc.2008.05.002
- Anderson, T. (2012) Networks, web 2.0 and the connected learner. In Reiser, R.A. & Dempsey, J.V (ed) Trends and Issues in Instructional Design and Technology(pp299-308). Pearson Publishers
- Chen, B. and Bryer, T. (2012) Investigating instructional strategies for using social media in formal and informal learning. Retrieved March 17th, 2014 from <http://www.irrodl.org/index.php/irrodl/article/view/1027/2073>
- Dictionary.com (2014) Web 2.0. Retrieved 15th December from <http://dictionary.reference.com/browse/web+2.0>
- Dooly, M. (2008) Constructing Knowledge Together (21-45). Extract from telecollaborative language learning. A guidebook to moderating intercultural collaboration online. M. Dooly (ed.). (2008) Bern: Peter Lang. Available at: <http://pagines.uab.cat/melindadooly/sites/pagines.uab.cat.melindadooly/files/Chpt1.pdf>
- Drew, C. (2012) Insights into social constructivist theory. Retrieved 14th March from the American International School, Riyadh. <http://www.aisr.org/alumni/yearbooks/45-about-ais-r?start=70>
- Duke, B., Harper, G., Johnston, M. (2013) Connectivism as a learning theory for the digital age. Retrieved 14th March, 2014 from <https://www.hetl.org/wp-content/.../2.../Connectivism-hand-out.pdf>
- Education Portal (2003-2014) What is collaborative learning? - Benefits, theory & definition. Retrieved 15th December, 2014 from <http://education-portal.com/academy/lesson/what-is-collaborative-learning-benefits-theory-definition.html#lesson>
- Eteokleous-Grigoriou, N. & Ktoridou, D. (2013) Social networking for educational purposes: the development of social cultural skills through special interest groups. In G. Mallia (Eds.), *The social classroom: Integrating social network use in education* (pp394-416). Information Science Reference (an imprint of IGI Global).
- Innovative learning .com (2013) (<http://www.instructionaldesign.org/theories/social-development.html>)

- Lehtinen, E., Hakkarainen, K., Lipponen, L., Rahikainen, M., & Muukkonen, H. (1999). Computer supported collaborative learning: A review. The J.H.G.I. Giesbers Reports on Education, Number 10.
- Moran, S. (2013) Technology's Benefits And Possibilities Retrieved 31st May, 2014 from <http://techbenefits.wordpress.com/>
- PB Works (n.d) Connectivism. Retrieved 14th March from <http://teachinglearningresources.pbworks.com/w/page/31012678/Connectivism>
- Siemens, G. (2005) Connectivism a learning theory for the digital age. http://www.itdl.org/journal/jan_05/article01.htm
- Smith, B. L., and MacGregor, J. T. (1992). "What is collaborative learning?" In Goodsell, A. S., Maher, M. R., and Tinto, V. (Eds.), Collaborative Learning: A Sourcebook for Higher Education. National Center on Postsecondary Teaching, Learning, & Assessment, Syracuse University.
- Tools of the Mind (2013) Zone of proximal Development and scaffolding Retrieved March 12th from <http://www.toolsofthemind.org/philosophy/scaffolding/>
- UNESCO (2002) Information and communication technologies – a planning guide. Division of Higher Education ED/HED/TED/3
- Vygotsky, L.S. (1978) Mind in Society. Cambridge, MA: Harvard University Press.