

Tablet Learning and its Perceived Usage at a Higher Education Institution in Fiji

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Abstract

Tremendous growth and successful integration of mobile devices to the education landscape have fuelled the birth of mobile learning (mLearning). Tablet learning has become a new educational paradigm in higher education. In the Pacific, the challenges of tablet devices in education is still unresearched. This study examines the perceptions of students involved in courses blended with Tablet learning from one higher education institution in Fiji. Results confirm that students perceived tablet learning devices to be an effective and innovative learning tool. A number of critical challenges, however, also need to be addressed for this potential to be realised fully.

Introduction

With the introduction of internet, and information and communication media in mainstream education, learning and teaching has evolved much in recent years. This has allowed educational institutions and individuals to explore the many possibilities created by this technology. The traditional method of face to face learning has shifted towards inclusion of internet and mobile technologies. This increases the redundancy of the geographic placement of the learner and the teacher.

Mobile learning, also popularly referred to as mLearning is defined as learning which takes place through the use of various mobile devices such as tablets, laptops and smartphones without being limited to a fixed physical location. Making a niche of its own in the education landscape is tablet learning. The introduction of tablet devices into the learning environment has brought in various benefits including but not limited to flexi-

bility to learning, student's access to resources, continuous learning and instant connectivity to internet and self-directed learning (Moeller & Reutzes, 2011; Rosman, 2008). Tablet technology for teaching and learning also enhances student's creative thinking skills while breaking down barriers between face to face and online teaching approaches. Tablet learning devices are portable; they respond to touch; they capture and play various media; they connect to various networks and peripherals, and demolish the need to tie particular activities to a particular place and a particular time. These features have made tablet learning the 21st-century learners' preferred learning space (Traxler, 2010). Pamuk, et. al (2003) call these learners the 'Net' Generation learners, whose success in tertiary education depends upon the ability for them to engage with learning at their own pace. Williams (2006) and Gayar & Moran (2006) also state that the educational institutes have to recognise, accept and respond to this new cohort of learners, and embrace the new technological device in its mainstream teaching and learning.

Tablet learning devices provide teachers and students a new platform that can improve class collaboration and note-taking; boost motivation, process and sharing, and generate further questions/ But the successful pedagogical use of this technological device is bound to be based on the perception and attitude of the device by the learners as well as the facilitators. Pamuk et al. (2013) and Rossing et al. (2012) state that issues such as sensitivity problems of the touch screen, limitation of the tablet devices for data transfer, technical knowledge, limited understanding of the technology, and connectivity issues can cause frustration and disappointment, and consequentially an attrition of interest and uptake from students.

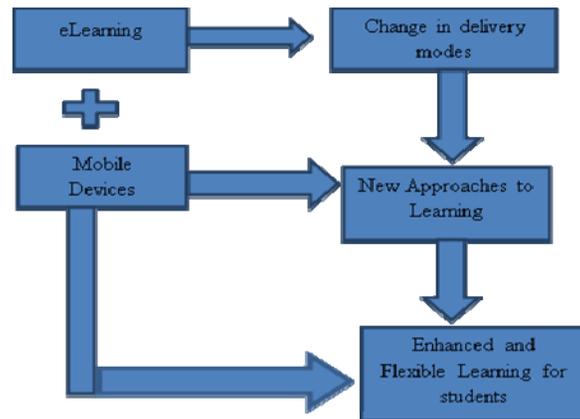
The University of the South Pacific leverages substantially on ICT to empower its students; it intends to encourage students to passionately embrace ICT as their learning tool and bring about a pedagogical revolution in the Pacific. Some of its in-house designed ICT tools include smart classrooms, Moodle-based early warning system, online mathematics diagnostic test and remediation, mLearning, eMentoring and multi-modal courses. As one of its strategies to enhance the student learning experience and engage the 'wireless' generation, tablet devices were introduced into its teaching and learning processes in 2013. Around 600 students from selected regional campuses received tablet devices to use for their distance education (USP, News@USP, 2013).

This paper reports on the perception of students on tablet learning devices (Android Tablets) for one of the every first blended courses offered at the university.

Literature Review

The inception of tablet technology has given a rise to a blend of teaching modes that can make the best use of each approach for different learning activities and experiences (Lavery, 2012). The aforementioned modes include print mode (also known as self-managed learning, as a mode of delivery that is designed to be self-instructional, self-explanatory, interactive and learner friendly), and the online mode (which is based on the incorporation of multimedia courseware, learning objects, online discussion forums, and audio and video conferencing with other online assessments) (Azizam, 2010 ; Raturi, 2010). A blended mode can be any combination of print and online modes, where their actual contributions and weightings may differ for different researchers and education providers. Higher education institutions across the globe are trying to utilise this mode to bridge the gap between face to face and online learning by integrating appropriate ICT technologies and media with Internet into its curriculum and delivery, making learning a more robust experience.

Fig 1: Impact of E-Learning combined with Mobile Devices



Traditional blended learning had many issues which were hindering the full exploitation of the ideologies and functionalities of the new method of learning (Sharma, et al., 2015). The use of Moodle and WebCT tools, online discussion forums, chat and email facilitated discussions and peer collaboration; these were used as cognitive tools rather than learning perceived from tutors and teachers (Taradi et al. 2004). The

strengths of blended learning combined with technology from literature include greater learner interactivity and efficiency, motivation, and cognitive effectiveness (Taradi et al. 2004; Koh & Hill 2009; Grace et al. 2012). It promotes collaborative learning which offers opportunities to develop skills for life-long learning. Blended learning combines collaborative learning with web-based technology to enhance student learning. Some of the weaknesses of blended learning with technology include the lack of a firm framework to encourage students to learn, technological impediments compromising collaboration and communication, and learners being restricted to labs and structured learning spaces (Taradi et al. 2004; Koh & Hill 2009; Grace et al. 2012).

Technology enhanced blended learning also had limitations; it was only with the adoption of mobile (wireless) devices such as PDAs, tablet devices, palmtops and smartphones, that the teaching and learning processes actually began realising and heralding the purposes, functionalities and advantages predicted for technology-enriched blended learning Sharma et al. (2015) designed the three pillars of mLearning, namely, just-enough, just-for-me, and just-in-time, which seem appropriate for tablet learning devices as well. The amalgamation gave rise to the concept of beyond classroom learning where the students had the flexibility to learn from anywhere and at any time (Squires, 2014).

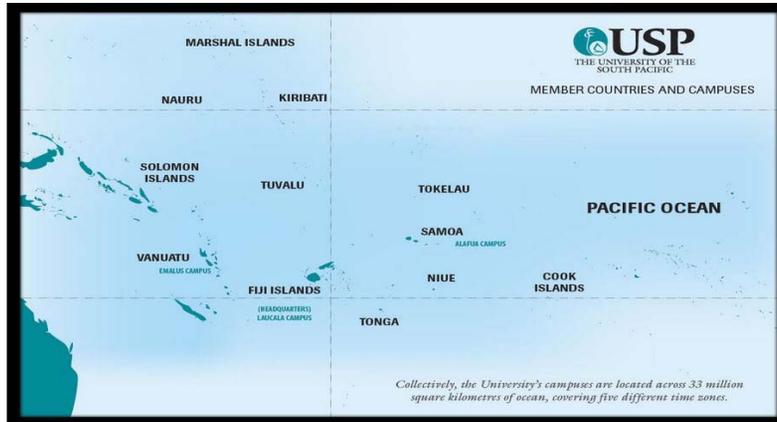
The use of mobile devices for learning has appealed the younger generation as these mobile devices with internet access offered an appropriate eduscape which assisted students in their learning activities both inside and outside of the classroom. This also allows for access to learning resources, enhanced collaboration with classmates and facilitators regardless of the location and time, hence allowing for newer opportunities for learners (Al-Fahad, 2009; Yousuf, 2007). Mobile learning has the capability to deliver at a greater ease than other digital devices at a relatively lower cost (Brown, 2003). Rosman (2008) states that students find the traditional method of learning difficult and adopted assistive technology like tablets to help them study and work more efficiently.

Background

The University of the South Pacific, set up in 1968 in the Pacific region, is jointly owned by the governments of 12 member countries: Cook Islands, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu and Samoa (see Figure 2). The Pacific region inherits an array of challenges and opportunities due to geographic isolation, non-uniform secondary school education systems, English be-

ing the 2nd or even 3rd language, student diversity, shoestring budgets, varying teaching resources, and lack of infrastructure. The university, being the only regional higher education provider in the Pacific, is expected to deliver premium quality education in all its member countries. The university has campuses in all member countries while its main campus is in Fiji, which is also the hub of most academic and non-academic systems and processes.

Fig. 2: The University of the South Pacific Member Countries



To make education more accessible and flexible, USP has emphasised ICT in designing efficient and cost-effective pedagogical tools which are contextualized and customised for the region. It offers programmes through flexible learning using cutting edge ICT tools and technologies in its 14 campuses. This invariably improved the quality of distance education in the region (Thaman et al. 2011).

The courses offered by the university include face-to-face, print, online and blended modes of delivery. A good number of courses are offered through multiple modes as the university extends its programmes further into the region and transforms itself from 'a good to an excellent university'. More recently the shift has been to blended mode, which is also the subject of this paper. According to USP (2015), a blended course blends online and face to face deliveries where a substantial proportion of the content, that is 30-79%, is delivered online using various ICT tools.

Methodology

The detailed study for this paper was carried out for the Labasa and Lautoka campuses (referred here as A for Labasa Campus and B for Lautoka Campus). The descriptions of the campuses are as follows:

Table 1: Campus Information for this Study

Indicators	Campus A	Campus B
Student Toll	976	2752
Availability of Computer Labs	4	2
Number of PCs	80	50
Availability of Wi-Fi	Yes	Yes
USP Net Services	Provision for video conferencing, audio/video satellite and broadcasting	Provision for video conferencing, audio/video satellite and broadcasting
MLearning Services	SMS notification, course finder and mobile game which is known as "Go Nuts"	SMS notification, course finder and mobile game which is known as "Go Nuts"

33 students out of 105 enrolled in UU100 - a recently designed blended course on offer - participated in the evaluation of the perception and attitudes towards tablet learning. All students from the population (n=105) were invited to participate in the survey through class news and announcement forums and in-class announcements. 33 agreed to be part of the survey; these students were each provided with an android tablet, which was returned at the end of the survey period. Each device was pre-loaded with resource materials for all the topics in the course, supplementary videos for each topic and help videos for various concepts that were part of the assessments.

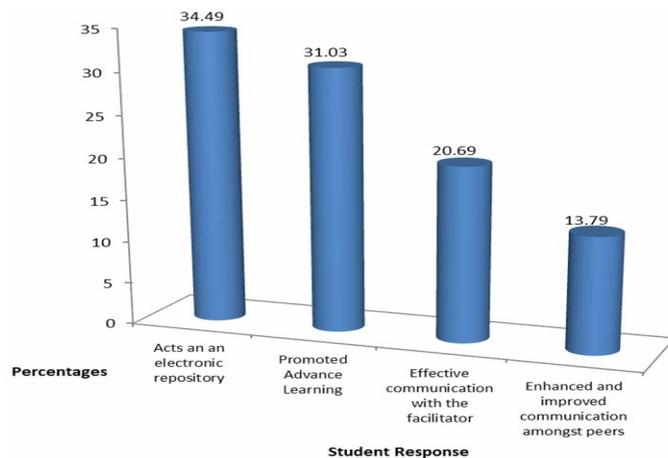
For data collection, two sets of questionnaires (pre-course and post-course) were distributed to the students who were part of the survey. The survey tested for student's perception towards the use of tablet learning device for the course. The study was conducted for a period of five weeks, which was the actual duration of the course. SPSS and Microsoft Excel were used for analysis.

Results

Perceived Usage

Figure 3 shows varied student responses on tablets as a learning and communication tool. 34% of the students perceived that since the tablets acted as an electronic repository, access to course materials (such as course lesson notes, videos and supplementary materials) was easier. Tablets also enabled students to do learning in advance of each activity schedule. 31% of the students were well prepared for their lab classes on account of advance learning. Tablets also minimised the problem of students waiting and getting access to a computer in campus computer labs thus reducing time wastage and enabling learning when needed and where needed. The ratio of a computer (located in campus computer labs) to student was 1:28. Since, the devices had fairly good connection to Wi-Fi at the campuses, students were able to communicate effectively with their facilitators through emails, chats and discussion forums (21%). Tablets also enhanced group interaction and collaboration amongst the fellow peers enrolled through Moodle messaging, topic discussion forums and assignment help forums (14%).

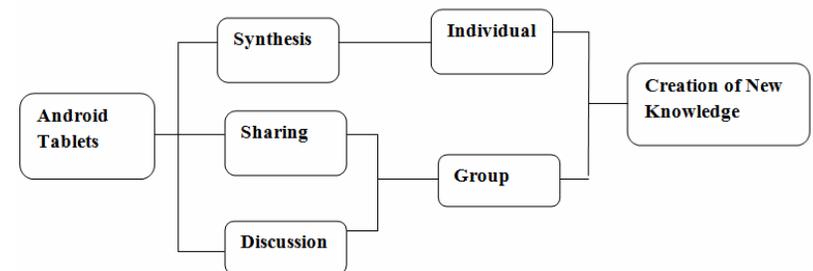
Fig 3: Tablets as a Good Learning and Communication Tool



Ability of Tablets to Share and Create New Knowledge

One outstanding functionality of the tablet devices was the ability to enhance sharing amongst students and create some form of new knowledge. Survey results showed that 69% of the students agreed that tablets enabled them to use their cognitive thinking skills to come up with new ideas, concepts and knowledge from the raw data they collected. However, 31% of the students still had no idea about this functionality of the device.

Fig 4: Ability of Tablets to Enhance Sharing and Creation of Knowledge



For this study, students used camera and recording features of the device to capture raw data which they later shared as a group. After a series of discussion amongst the group members using their cognitive thinking skills, students came up with topics on which they made presentation to the class, including interesting recommendations. Another way the students created some form of new knowledge was that they collected raw data and compiled it on their MAHARA (ePortfolio pages) and came up with interesting reflections about their learning journeys.

Concerns Related to the Tablet Devices

The perceived functionalities of the tablets were not fully harnessed. The study showed that there were two main reasons for this: ICT competency and Connectivity.

ICT Competency

From the sample, 62% of the students were competent with using the tablet for various functions; the remaining 38% were not competent in using the tablets. For the maximum utilization of the tablets was not done for learning. They indicated that they needed some sort of training and workshops to be conducted before they were actually given the tablets for learning. Some of the problems encountered by the students were; downloading and saving files to the device, swapping between screens and tabs, viewing compressed files, using MS office files and using internet to browse for research documents.

Connectivity Issues

40% of the students stated that they faced connectivity issues which hindered them in completing their online tasks and web searches. These students also indicated that due to disconnections of internet, they sometimes had to re-do their tasks, which was very frustrating and time consuming for them.

Recommendations

Students also presented a number of recommendations for effective and successful implementation of tablet learning at higher education institutions in Fiji. These are grouped into 5 recommendations.

First, there is a need to introduce the concept of tablet learning at basic levels (primary and secondary schools). At these levels, the curriculum needs to be amended to provide for specific activities that are suitable for each level of study. Second, at the secondary level, computer education should be made compulsory as a core subject (together with English and Maths). Third, for such projects there should be support from both the governments and respective stakeholders. Fourth, the tablets should have relevant software which can be used to push contents and update content for courses in offline mode such as MDM software (mobile management software with Moodle mobile app). Finally, the tablets need to be accompanied with keyboards to improve student convenience.

Conclusion

Substantial increase in the use of ICT has made it possible for wireless mobile devices to be used as a pedagogical tool. Recent studies show

that in the Pacific region, the use of mobile devices is popular amongst the younger generation. Youth actively use these devices for social purposes and to some extent for learning (Sharma et al, 2015). The University of the South Pacific, which is a higher education provider in the Pacific, has integrated smart media and adopted mLearning system to motivate its students to learn and take advantage of the new learning pedagogies to promote life-long learning (Reddy & Sharma, 2015).

This study provides an initial feedback of students' reaction towards mLearning (using tablet devices). The results of this study show that the tablet devices were an exciting as well as an effective and efficient learning tool. The survey showed that students perceived that tablet devices were good collaborative tools which engaged them, and enhanced and boosted their learning experiences. It further showed that tablet devices had the ability to enhance sharing amongst the students and to exploit their cognitive skills to create some form of new knowledge.

Tablet Learning is a new learning opportunity for future education at the universities in Fiji and the Pacific. For successful and sustainable mLearning in the region, it is recommended that more awareness sessions, including training and workshops for students and facilitators, need to be conducted by education institutes before introducing these tools to the teaching and learning processes.

References

- Al-Fahad. (2007) 'Student's Attitudes and Perceptions towards the effectiveness of mobile learning in King Saud University, Saudi Arabia'. *The Turkish Online Journal of Educational Technology* 1-9.
- Azizam,Z, F. (2010) 'Blended Learning in Higher Education Institution in Malaysia'. *Proceedings of Regional Conference on knowledge integration in ICT*,. Insaniah. pp. 454-466.
- Brown,T. (2003) 'The role of m-learning in the future of e-learning in Africa'. *Presentation at the 21st ICDE, World conference, 2003, Hong Kong*.
- Gayar, O., & M. Moran (2006) 'College Students' Acceptance of Tablet PCs: An Application of the UTAUT MODEL'. 45-50.
- Graham, C. (2004) 'Blended Learning Systems: Definition, Current Trends, And Future Directions'. in C. Bonk, *Handbook of blended learning: Global Perspectives, local designs*. San Francisco: Wiley.
- Koh, M., & Hill, J. (2009) 'Student Perception of Group Work in an Online Course: Benefit and Challenges'. *Journal of Distance Educaiton*, 1-24.

- Lavery, H. (2012) *Why it matters to Higher Educaiton*. Retrieved from educause : <http://www.educause.edu/ero/article/breaking-down-barriers-tablet-technology-teaching>, June 12 2012.
- Moeller, B., & T. Reutzes (2011) *Integrating Technology with Student-Centered Learning*. Quincy: The Nellie Mae Education Foundation.
- Pamuk, S., R. Cakir, M. Ergun, B. Yicmaz, & C. Ayas (2013) 'The use of Tablet PC and Interactive Board from perspectives of Teachers and Students: Evaluation of the FAITH Project'. *Educational Sciences: Theory and Practices*, 1815-1822.
- Raturi, S. (2010). 'Learners' Satisfaction of, and preference for, different instructional delivery modes: A case study from University of the South Pacific (USP)'. Suva, Central, Fiji. unpublished.
- Rosman, P. (2008) 'M-Learning - As a Paradigm of new forums in education'. *Information Management*, 119-125.
- Rossing, J., W. Miller, A. Cecil, & S. Stamper (2012). 'iLearning: The future of higher education? Student perceptions on learning with mobile tablets'. *Journal of the Scholarship of Teaching and Learning*, 1-26.
- Sharma, B., A. Jokhan, R. Kumar, & V. Rao (2015) 'Use of Short Message Service for Learning and Student Support in the Pacific Region'. unpublished. Suva.
- Squires, D. (2014) 'M-Learning: Implications in Learning Domain Specificities Adaptive Learning, Feedback, Augmented Reality and the Future of Online Learning'. *i-Manager's Journal of Educational Technology*, 1-8.
- Taradi, S., M. Taradi, K. Radic, & N. Pokrajac (2004) 'Blending problem-based learning with Web technology positively impacts student learning outcomes in acid-base physiology'. *Teaching with Technology*, 35-39.
- Thaman, H., R. Hogan, & S. Raturi (2011) 'Learners' access to tools and experience with technology at the University of the South Pacific: Readiness for eLearning'. *Australasian Journal of Educational Technology*, 411-427.
- Traxler, J. (2010) 'Students and mobile devices' *ALT-J, Research in Learning Technology*, 149-160.
- USP. (2013, April 10). *News@USP*. Retrieved July 13, 2015, from: <http://www.usp.ac.fj/news/story.php?id=1253>
- USP. (2013, February 12). *USP - An Introduction*. Retrieved from: http://www.usp.ac.fj/index.php?id=usp_introduction
- USP. (2015, February 12). *campuslife/offcampus*. Retrieved from: <http://www.usp.ac.fj/campuslife/offcampus/>
- USP. (2015, January 29). *USP Labasa Campus*. Retrieved from: <http://www.usp.ac.fj/?3394>
- USP. (2015). *USP Lautoka Campus*. Retrieved from: <http://www.usp.ac.fj/index.php?id=8161>
- USP. (2015, January 15). *USP Tuvalu Campus*. Retrieved from: <http://www.usp.ac.fj/index.php?id=3647>
- USP. (2015, August 18). Course Descriptions. Retrieved from: https://www.usp.ac.fj/index.php?id=course_prescriptions
- Yousuf, D. M. (2007) 'Effectiveness of Mobile Learning In Distance Education'. *Turkish Online Journal of Distance Education*, 114-124.

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