

Developments in e-learning in education in Samoa: Issues, Challenges, Strategies and Recommendations for the way forward.

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ABSTRACT

This paper looks at e-learning initiatives in education in Samoa, focusing on developments at the National University of Samoa (NUS) and the Ministry of Education Sports and Culture (MESC). The main aims of these developments are the provision of access to learning, bridging the technological divide, and the promotion and pursuit of open education resources (OERs) The API Environmental series is an example of collaborative course development by 7 universities to increase access in the Asia Pacific region to online courses in areas identified as having relevance and importance across the region such as environmental studies and disaster management. The NUS CISCO academy funded by a partnership between International telecommunications Union (ITU), UNDP and CISCO was set up as part of CISCO and ITU's LDC initiative to build capacity in least developed countries like Samoa, in an attempt to bridge the digital divide. Developments at MESC include broadcasting lessons for primary schools and the SchoolNet project aimed at providing computers in secondary and primary schools, the development of OERs hosted on a portal and the provision of community access after hours. But perhaps the most viable and prominent of these is our involvement in the Commonwealth of learning developments such as the FLOSS4EduPacific for the promotion of use of open source software, and the advances made within the Virtual university (VUSSC). VUSSC activities include participation in the online course development bootcamps, training in the wiki-educator workshops for NUS staff, and outreach for the Community tele-centres and the SchoolNet centres.

The discussion includes issues and concerns which have unfolded from these initiatives such as the need for a stable technical infrastructure, sustainability in terms of resources and the need for a pedagogical framework. The paper concludes with a set of recommendations for future development in the area of e-learning.

Keywords: e-learning, wikieducator, FLOSS4Edu, Moodle, VUSSC

Introduction

This paper looks at strategies to utilise technologies at the National University of Samoa for improving the delivery of teaching and learning. For each of these initiatives, the issues and problems in the implementation of these initiatives are discussed along with future plans for the way forward. The main emphasis of this paper is a discussion of the e-learning developments in Samoa focusing on developments at NUS and also the recently implemented SchoolNet initiative within the Ministry of Education Sports and Culture (MESC).

Virtual classrooms

The virtual classrooms were first established in 2003 and currently supplement on-campus instruction. The virtual classrooms are hosted within the Moodle learner management system. There are 27 classes currently hosted from 5 faculties of the Institute of Higher Education (IHE).

Current usage is mostly hosting of course notes in Word and Power point. Unfortunately the different features of the virtual classrooms are underutilised, for

example the use of bulletin boards, discussion forum, student webmail for running the helpdesk, and the use of chatrooms.



Figure 1. Students using the Virtual classrooms at the National University of Samoa

A critical issue in the use of the virtual classrooms is access. With only 6 computer labs to service a student population of about 2000, access to computers and the network is a problem. A problematic factor is the stability of the infrastructure. Another major aspect which needs addressing is that of training for staff and students. Specifically for NUS, lecturers and students need to be trained in the use of Moodle, basic file management skills, email usage and web navigation.

The virtual classrooms have enhanced access and quality of education through improved access to course notes, better communication between lecturer and students and amongst students, and through facilitation of more effective management of the classroom activities.

Ongoing plans for further development and expansion of the virtual classrooms include: a) the training of teachers and students in the use of Virtual classrooms;b) training of teachers in pedagogical skills for technology integration into teaching; c) training in the use of authoring tools to develop learning objects for course content; and d) diversification of course content by use of authoring tools such as Webcom, EXE and Wikieducator

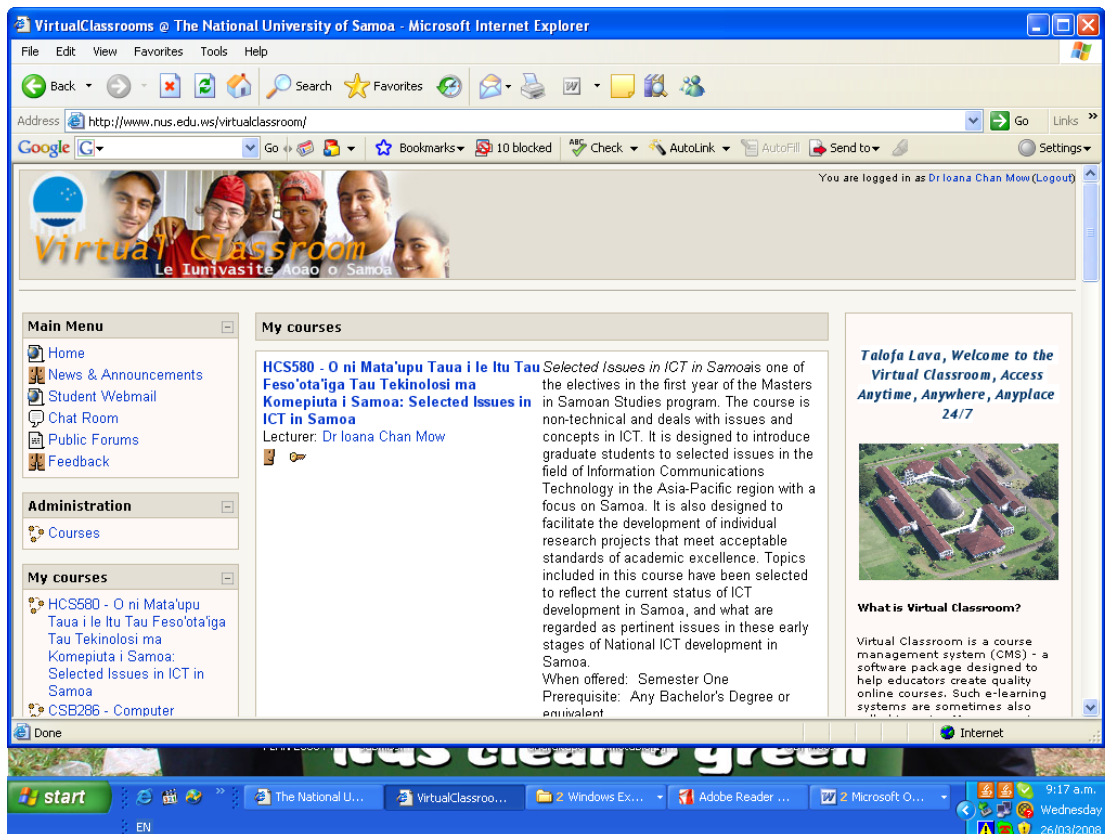


Figure 2. Virtual classroom hosted in Moodle

Video-conferencing courses

An important development at NUS was the introduction of e-learning courses delivered via videoconferencing. A significant development in this area occurred in 2005-2006 with the Asia-Pacific initiative (API), an international collaboration between 7 universities of which NUS is part of. The main aim of the API initiative is expanding access by offering online course content on content areas identified as relevant and of value in the Asia-Pacific context. The first courses offered were Environmental Studies and Disaster management and were at postgraduate level. These courses are offered via the use of VTC supplemented by the use of Moodle for hosting class lectures, discussion forums and an email helpdesk. Another major reason for faculty interest in the Asia Pacific Initiative is the provision of content for developing of faculty postgraduate programs.

Issues in the offering of these VTC courses include the reliability of the connectivity the SAS link, constraints of bandwidth and also the need to attract clientele. The issue of bandwidth has been somewhat alleviated by the installation in 2005 of a 1 MB satellite link. The need to boost enrolments in these courses calls for a more aggressive promotion campaign and incorporation into the postgraduate program.

CISCO academy

The CISCO academy was established in 2002 with the launch of the CCNA program and since its inception the academy has netted 294 enrolments between 2002 and 2005. CISCO academy programs utilise both online and face to face (The lectures and practicals are offered by tutors in face to face but the tutorials are conducted online

and self-paced). The academy was set up as part of CISCO and ITU's LDC initiative to build capacity in least developed countries like Samoa, in an attempt to bridge the digital divide. Discounted tuition, and free transport were offered to female students as incentives in an attempt to bridge the gender divide.

Most of the issues within the academy have had to do with sustainability and include the cost of training and retaining instructors. Future plans include offering of IT Essentials I and II in semester 2 2008, which will provide the feeder course for CCNA. One of the major planned developments is for the NUS CISCO academy to become regional academy for ITE I and II in 2008. It is envisaged that this will be brought about by the establishment of local academies in selected secondary schools and tertiary institutions. Benefits of such a development will be its provision of capacity building for MESC ICT division, for the SchoolNet ICT administrators, for the ITU telecentres and for all other National ICT initiatives, thus ensuring sustainability.

There are also plans to have the CCNA curricula integrated into the Computing BSc curriculum hopefully to improve relevance of the BSc program and to provide clientele to ensure the continuity of the CCNA program.



Figure 3. Cisco Networking practical

Virtual University of Small States of the Commonwealth

Perhaps the most significant development in e-learning in Samoa is its membership of Virtual University for Small States of the Commonwealth (VUSSC). VUSSC is a network or consortium of states with the goal of collaborative course development processes for building educational courses and programmes for small island states of the Commonwealth. There are 24 of these states spanning Asia, Pacific Africa and the Caribbean.

To quote the goals of the virtual university are to develop capacity, develop and share learning content and courses, and work toward establishing a standards and credit transfer mechanism. The resulting products are then integrated into programmes offered by these VUSSC institutions. Content developed by VUSSC members can be shared under a Creative Commons licence (see www.creativecommons.org for further information). To overcome issues of copyright and wherever possible, the Creative Commons licence conditions set will be Attribution and Share-Alike. The activities of

the VUSSC consortium are driven by its members, with coordination support from the Commonwealth of Learning.

Since its inception, VUSSC has moved quickly in implementing its plans and strategies. Course development has already been completed in the areas of Tourism, Management, Life skills, Course design.

VUSSC activities in Samoa include participation in the online course development bootcamp for Disaster management, training in the wiki-educator workshops for NUS staff, Curriculum unit of the Ministry of Education, the Community tele-centres and the SchoolNet centres.

In the area of professional development there has been training for team leaders for online course development and training for instructional designers for those NUS/IOT lecturers who have completed the Masters in Distance learning and have been trained for the purpose of forming the NUS instructional design team.

In terms of on campus learning or the virtual classrooms there are immediate plans for the use of VUSSC training and course development to enrich content and supplement courses on virtual classrooms for on-campus courses.

Another initiative spearheaded by the Commonwealth of Learning is the promotion of the use of open source software via the FLOSS4Edu project (http://www.wikieducator.org/FLOSS4Edu_Pacific_Workshop) promoting the use of Wikieducator, Open Office and Linux. FLOSS4Edu (Free/Libre and Open Source Software for Education) is a rapidly growing Commonwealth initiative to tackle the dire shortage of free knowledge for education, and to build capacity in the use of free software tools for educators. WikiEducator's FLOSS4Edu project strives to build a thriving community of teachers sharing knowledge to widen access to quality learning opportunities. A workshop in August 2007, funded by the Commonwealth of Learning in Wellington saw the launch of WikiPasifika the Pacific chapter of FLOSS4edu. Wiki Pasifika aims towards building capacity in the Pacific on the use of WikiEducator by networking among Pacific countries to raise the awareness and availability of free content resources. By establishing local Wiki Ambassadors and strengthening and renewing professional and regional alliances the aim is to raise awareness with policy decision makers and key stakeholders about the use of free content and open collaboration for the good of all.

With compliance with licensing of proprietary software being a challenge in the under-resourced economies of small pacific islands, the capacity building in open source resources provides a feasible direction for widening access and provision of educational resources within the small island states of the Pacific.

Another innovative Commonwealth of Learning project is the Learn4Content program in which teachers are given lessons in authoring tools such as wikieducator in exchange for a free lesson which can be shared as part of Open Educational Resources (OERs). There are plans for offering Learn4Content workshops at the National University within the course of 2008.

School broadcasting

The ministry runs an education radio broadcasting service delivered by the Educational Broadcasting Unit at the ministry. Programs are broadcasted daily for 60 minutes, starting at 8:30 am, while schools are in session, and follow a structure and

schedule, offering four 15-minute radio programs for a variety of subjects and grade levels per day. The schedule, *Tomatau*, is available to all primary schools and outlines not only the programs, but also additional stories, exercises, and activities for teachers to conduct with their students, complementing the radio show. The broadcasting unit traditionally serves primary schools and had served the country since 1940 when the unit was established. The unit has been engaged in a variety of donor-funded projects, mainly around teaching and learning materials, which provided additional textbooks and workbooks in relation to the radio broadcast. Under such as project the unit has complemented the live broadcasting program with audio CDs and cassettes of archived programs. However, the broadcasting unit is aware that while the majority of primary schools in the country seem to regularly tune into the live program, the CDs are not, or not optimally, used. In addition to its programming, the MESC broadcasting unit has also been involved in a radio-supported distance learning program for teachers, which concluded in 2004

SchoolNet Initiative

The Samoa SchoolNet and Community Access Pilot (“SchoolNet”) project was aimed at piloting an appropriate model for introducing ICT in schools and also sought to extend this exposure to ICT to school communities to improve their knowledge and capacity to become productive members of the local communities. The project was implemented from March 2005 until December 2006. The goals of SchoolNet were to (i) improve quality and efficiency of education; (ii) enable access to global information; (iii) enable increased sharing of information between schools and with communities; and (iv) achieve the Government’s Education for All and Millennium Development Goals for education.

Five schools were selected to participate in the pilot: four government colleges, and one government primary school. Selection of these SchoolNet schools were based on such criteria as: accessibility rating as a pilot school, the existence of adjoining schools they could connect to, existing infrastructure conducive for connectivity, ability to meet recurrent costs, and commitment by school administrators and the community to the pilot project.

Activities in SchoolNet included:

- The provision of computer labs, Community Learning Centers (CLC), fully equipped with hardware and software (included pcs. Servers, video camera, printers, fax, webcamera, photocopier, Internet access)
- The creation of a SchoolNet portal for hosting learning objects and e-resources.
- The provision of a training program in basic ICT skills, use of ICT hardware for “ICT administrators
- The development and provision of training materials on basic applications, managing access through policies and regulations, business planning for managing the centers.
- The provision of one year maintenance of SchoolNet equipment by a local vendor in terms of monthly routine system checks.



Figure 4. Students and teacher in the SchoolNet project laboratories.

The main lessons that have been learnt from SchoolNet (SchoolNet Final Report, 2007) are as follows: Specifically for the e-learning component, the main issue was the lack of access to the portal leading to the portal being underutilised. Secondly the teachers were not familiar with the portal and hence not aware of its potential benefits as a tool and medium for teaching.

On the overall issues with Schoolnet are as follows: Firstly, provision of IT equipment itself will not provide the solution to improving access to ICT in education and the wider community. A holistic and integrated approach needs to be adopted, and needs to take into account infrastructure development, systems and procedures and capacity building – capacity building in schools, in CMAD¹ and in local capacity in general (e.g., IT services). Secondly, there needs to be a long term sustainable and integrated approach from the Government and the donors. Short term, ad hoc projects from donors working in isolation have little chance of success. Government, whilst showing a fair level of commitment to SchoolNet, needs to expand this commitment, in areas such as provision of human and budgetary resources, and fostering partnerships with the communities.

Currently there are plans for extending and scaling up the project to include 30 school centres under the ADB funded ESP II project. The concern however is the need to perfect and adjust the pilot model taking into account lessons learnt from evaluations such as one conducted by the IRETA STEP-AP study on the SchoolNet project. Furthermore, SchoolNet shares the same goals as the ITU funded Fesootai centres which are now in 11 villages and collaboration between these two initiatives should provide mutual benefits.

Recommendations and Conclusion

In summary, e-learning at the National University and MESC is still in its piloting and pioneering stages. The following are some recommendations for future direction in e-learning at NUS and at the ministry:

As indicated in the literature, enabling policies have a critical role in integrating ICTs into the education sector (Kanwar, 2007). Increasingly, developing countries are

¹ Curriculum Materials and Assessment Division of the Ministry of Education Sports and Culture

investing in policy development as a systematic way of utilizing technology for the enhancement of teaching and learning. Hence, for future growth and expansion there is a need for well-laid out policies for ODL and ICT integration to underpin well thought out implementation plans that are realistic and sustainable.

A commonly cited obstacle to ICT integration is the lack of teachers' content technology and pedagogical knowledge (Vrasidas et al, 2004). At the National University, there is a need for professional development for both lecturers and students. Such a need for professional development is two fold –firstly to equip the teachers and students with skills for using the technologies and secondly to accommodate for the paradigm shift in terms of the locus of control where the role of the teacher shifts from a purveyor of instruction to a facilitator of learning (Scardamalia & Bereiter,1996). In essence, teaching has changed from the provision of resources to the organisation of paths to and through resources (Gaskill & Tait, 2007).

Research in online learning suggest that it is the level of interaction amongst learners within a community of learners which facilitates the learning process (O'Donoghue et al., 2004). Hence, there is a need to promote interactions amongst community of learners through such strategies as reflection, the use of logs, discussions on topics, and through stimulation of critical inquiry. There is a need to encourage the use of the discussion forums, simulations, and the use of multi-agents. There is also a need to run email helpdesks for each of the courses to provide timely feedback and response to students.

With the increasing pervasiveness of mobile phones in Samoa the potential of the use of mobile devices for e-learning needs exploring. For example the use of mass texting /emailing in student communication needs investigating as a supplement to posting messages on noticeboards.

There is a need for the review of curricula. Adapting courseware from print based to web based requires a review of the curricula. As mentioned earlier, there is a need for a stable and improved infrastructure (Chan Mow, 2006). There is a need for the development and establishment of standards for curricula, and for teacher and student quality.

There is a need to experiment and pilot innovative technologies such as mobile technologies and social networking software. Mobile learning, according to Devinay & Koschembah (2004), can be particularly suited for 'just in time' education. Wireless and mobile technologies make it possible to provide learning opportunities to learners that are either without infrastructure for access (for example rural learners and nomadic learners) or continually on the move (for example business professionals). Social networking software and the emergence of Web 2.0 social networking technologies need to be investigated. Web 2.0 according to O'Reilly (O'Reilly, 2005) refers to the next generation web that is designed to support and celebrate individuals contributions to the public network. It allows individual teachers/learners to publish their own content, own their own publishing and distribution networks, and to share and co-create common spaces on the Net (e.g., Wiki, blogs, MySpace, VLEs, LMS). With the increasing popularity of such social spaces amongst students, it is necessary to investigate how such technologies can be

leveraged for the delivery of teaching and learning. Furthermore, there is a need to investigate what are sustainable technologies within the context of the learning and social environment.

The development of distance learning is currently not formalised at NUS, with the API courses and CISCO programs offered on a “response to needs basis”. However there are plans in this direction to be spearheaded by the Oloamanu professional development centre, and plans for the establishment of an open and distance learning unit for NUS. The university’s involvement in VUSSC and COL developments is testament to its commitment to open and distance learning.

In conclusion, the use of technologies for improving access to education is a must for any institution in the 21st century. Through experimenting and trialling of these technologies NUS will be able to find out what mix or blend of technologies are effective and sustainable for the delivery of their educational programs both on and off-campus.

References

- Chan Mow, I.T. (2006) “The effectiveness of a cognitive apprenticeship based learning environment (CABLE) in teaching computer programming”, Unpublished PHD dissertation, University of South Australia.
- Devinay, N. & Von Kosche, C. (2004) Learning Goes Mobile. *Human Resource Executive Magazine*.
- Gaskill, A. & Tait, A., (2007) What do we know about using new technologies for learning and teaching? A ten year perspective, Proceedings of the 12th Cambridge Conference on Open and Distance Learning, NewHall, Cambridge.
- Kanwar, A., (2007) Digital divide or Digital Dividend? Postcards from the South, Proceedings of 12th Cambridge International Conference on Open and Distance Learning, NewHall, Cambridge, UK.
- O’Donoghue, J., Singh, G., & Green, C., (2004). A Comparison of Advantages and Disadvantages of IT Based education and the Implications upon Students. *Interactive Educational Multimedia*, 9, 63-76. Retrieved June 2nd, 2005, from <http://www.ub.es/multimedia/iem>.
- O’Reilly, T. (2005). What is Web 2.0: Design Patterns and Business Models for the Next Generation of Software. Retrieved April 7, 2007 from <http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html>
- Scardamalia, M. & Bereiter, C. (1996). Computer Support for Knowledge Building Communities. In T. D. Koschmann, R. Hall & N. Miyake (Eds.), *CSCL Theory and Practice of an Emerging Paradigm* (pp. 249-268). Mahwah, New Jersey: Lawrence Erlbaum Associates Publishers

SchoolNet Final Report (2007) *Samoa Supporting the Samoa Schoolnet and Community Access Pilot Project* ADB TA No. 4305–SAM. Helsinki Consulting Group

Vrasidas, C; Zembylas, M; & Legaspi; J.M.B. (2004) Empower ICT. E – learning for in- service Teacher Education and support. *International Journal of the Computer, the internet and management* 12 (2) 81-86.