APTUS Deployment in Samoa

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Samoa

- Located in the South Pacific Ocean
- Population of ~180,000
- Internet connectivity: Yes
  - Expensive
  - Poor coverage
TRIALING OF APTUS TECHNOLOGY WITHIN EDUCATIONAL CONTEXT IN SAMOA
ICT in Education in Samoa

- In Samoa, integration of computer and communications technology into the school system is in its initial stages; implemented through a variety of projects
  - Schoolnet
  - One Laptop per child (OLPC)
  - CSL E-rate project

- Key issues hindering
  - issue of access
  - affordability.
Issues in ICT Integration

- Access to quality resources through technology limited.
- Technology resources woefully underutilized.
- SchoolNet schools substantial electronic teaching resources but accessed only within SchoolNet labs.
- Teachers uptake of technology low
- Access to resources with technology even more limited in primary schools
- Challenge - Access to the Internet
Issues in ICT Integration

At National University of Samoa,

- extensive network ~ 300 pcs in 7 computer laboratories and about 20 pcs in the university library.
- access to computer labs limited with priority given to computer classes.
- problem aggravated by increasing student numbers.
APTUS Innovative Solution

- The aptus also referred to as “classroom without walls” is a device set which allows access to digital or electronic resources in the absence of electricity or the internet (Ghosh 2013).
- Developed through the Commonwealth of Learning (COL)
- Resources such as
  - Khan academy (2000 videos)
  - Wikipedia, wiktionary
  - OwnCloud – file sharing app
The Study

- The study trialed the use of the APTUS & explored feasibility using APTUS within the context of NUS, and schools in Samoa to provide and improve access to e-resources.

- This was a collaborative effort by NUS, Commonwealth of Learning (COL) and Ministry of Education Sports and Culture (MESC)
The Study

- COL - 15 sets of the aptus
- MESC - transport and support for training workshops for the trial.

Study was implemented in 2 phases.
- **Phase 1** – trialed the aptus within the National University of Samoa. (Tertiary)
- **Phase 2** trialed the aptus in selected primary and secondary schools within the urban area. (Primary&Secondary)

At end of each phase, the use of the aptus was evaluated using *user perceptions* on **ease of use** & **usefulness** of the aptus device in access to electronic resources.
Phase 1

Methodology

- quantitative and exploratory in nature
- Phase 1: selected sample - 223 students in the 16-18 year age range in 12 tutorial classes of HCS081
- 4 tutors of the 12 tutorial classes
- HCS081 semester long introductory Computer studies course at University foundation level (equivalent of pre-college year) ---students learn basic introduction to Windows, Microsoft applications as well as introductory level Java programming.
Procedures

- For teachers and students activities trialed:
  - navigate the aptus Home page,
  - downloading & uploading notes from aptus using **OwnCloud** a file sharing application,
  - using **Moodle** virtual classroom to access course notes, upload student assignments and conduct online quizzes.
Evaluation

- Upon completion of trial, staff and students completed survey evaluating user perceptions on **ease of use** and **usefulness** of the aptus device.

- All likert type questions range from strongly disagree to strongly agree

- 2 variables
  - Ease of use
  - Usefulness
RESULTS

- **Ease of Use**
  - Possible range 1 to 5 with natural midpoint of 3
  - Actual results very positive with average responses range from 3.4 to 4.3.

- **Usefulness**
  - Possible range of values individual items 1 to 5 with natural midpoint of 3
  - Actual results - very positive and all above average responses ranging 3.8 to 4.3.
Tutors

- Perceptions of ease of use and usefulness even more positive than students - all responses in the agree or strongly agree category.

- Found aptus easy to install, did not overheat, easy to upload and download notes.

- Very enthusiastic with use of Moodle for managing classrooms - communicating with students, conducting activities such as online quizzes

- Only concern: the technical details of managing Moodle such as student registration.
Phase 2

Methodology

- Quantitative and exploratory in nature

- Primary School
  - Selected sample: 57 students (Moataa Primary)
  - 45 students from Magiagi Primary.
  - Age range: 8 to 10 years
  - Year 4 and Year 6 classes (level)

- Secondary School
  - Selected sample: 107 students (Leififi College) 61 students (Samoa College)
  - Age Range: 12 to 16
  - Year 9 and Year 10 classes (level)
Procedure

- For both Primary and Secondary the aptus was setup and was used to teach English and Maths.
- Tablets were given out to the participants.
- Before the trial, tutors were trained first to familiarize with the tablets and Aptus.
  - Training involved setting up the aptus, uploading course notes and creating assessments.
  - During training, teachers discussed with the team the activities for the 4 weeks of trial.
Results (Primary)

Ease of Use
- Range of values for responses on individual items, 1 – 5 with natural midpoint of 3.
- Actual results indicated very positive and all above average responses ranging from 3.6 to 4.7

Usefulness
- Range of values for responses on individual items, 1 – 5 with natural midpoint of 3.
- Actual results indicated very positive and all above average responses ranging from 3.7 to 4.7
Results (Primary)

- Feedback from the Teachers
  - Ease of use were not as positive as students with a mean of 40 compared to 49 for the students.
  - They were enthusiastic with the use of the Aptus for their teaching as evident from their comments.
    - “Using the Aptus is very good. I see the students has increase their motivation and interest in attending the activities by using the tablets. They wouldn’t show this kind of interest if it was a normal lesson.”
    - “I see a lot of advantages and good change when using the Aptus. It eliminate a lot of waste when using a lot of paper and there is a lot of dust when using the blackboard.”
Teachers also pointed to the need for more training in the use of the tablets as well as various features of the Aptus. As well as recommending to extend the use of the Aptus to teach other subjects.
Results (Secondary)

- **Ease of Use**
  - Possible range of values for responses on individual items was from 1 to 5 with natural midpoint of 3 representing neutrality.
  - Actual results indicated very positive above average responses ranging from 3.5 to 4.5.
  - Students indicated very high levels of positive perceptions in terms of ease of use.
Results (Secondary)

- **Usefulness**
  - As for usefulness possible range of values for responses on individual items was from 1 to 5 with natural midpoint of 3 representing neutrality. Questions 2 and 3 were not relevant as the study did not include the use of Moodle. Actual results on usefulness indicated very positive and all above average responses ranging from 3.6 to 4.4
Results (Secondary)

Feedback from Tutors

- Responses highly positive with mean item ranging from 3.5 to 4.75
- Agreed strongly that the Aptus was easy to install, easily recharged, did not overheat and users could view videos simultaneously.
- Enthusiastic with the use of Aptus for their teaching
- However pointed out the need for more training in the use of the Tablets as well as more training on the use of the various features of Aptus
SUMMARY

- **Phase 1**
  - The results of the survey indicated very positive perceptions of staff and students to the *usefulness and ease of use* of the aptus.
  - No gender differences in responses for both ease of use and usefulness
  - No age differences as the sample was from HCS081 class all in the 16-18 age range
  - Interviews with tutors indicated “great enthusiasm of students to learn using the aptus with tutors seriously asking for the opportunity to purchase their own personal aptus to be used in everyday teaching.”

- **Phase 2**
  - More positive than phase 1
  - Year 4 more positive than year 6, year 9 more positive than year 10
  - Significant gender differences in responses to 4 items with females on average showing more positive perceptions than males in these 4 items
Summary

- **Phase 2 continued**
  - Interviews with tutors indicated the Aptus increased “..*student motivation and interest than a normal lesson*..”
  - Tutors also strongly recommended the need for sufficient training in both the use of the tablets and the use of the Aptus. Tutors indicated that this was needed so that they can be comfortable in using these devices in their teaching.
RECOMMENDATION

- Findings point to viability of aptus as a technology to be introduced into teaching and learning environment to improve access to quality educational resources.

- With explosive growth of mobile phones, ready availability of low cost tablets as well as Open education resources – makes the aptus a very viable affordable solution in developing and underdeveloped countries.

- From the results of Phase 2, a strong recommendation is made to adopt the Aptus as a technology for providing access to quality educational resources within the context of primary and secondary schools in Samoa.
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