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Provoking Change: Technology in Education Case Studies from Samoa

Summary of Findings

Strigel, C.; Chan Mow, I.; Va'a, R.

I. BACKGROUND TO THE STUDY

1. With the aim to provide developing member countries (DMCs) with better guidance to use information and communication technology (ICT) effectively in education, the Asian Development Bank (ADB) funded a 21-month regional technical assistance (RETA) in Bangladesh, Nepal, Mongolia, and Samoa. Under the RETA, we researched approaches to using ICT in education, for improvements in teaching and learning that are not only successful but also feasible and sustainable given the region's development challenges. The study was implemented by RTI International in partnership with iEARN-USA. "Innovative Information and Communication Technology in Education and Its Potential for Reducing Poverty in Asia and the Pacific Region," commenced in April 2006.

2. The study aimed at highlighting promising models of ICT integration and best practices; identifying drivers and barriers to successful ICT integration; and sharing lessons learned, with a specific focus on rural and remote areas. It combined policy analysis, program evaluation (mainly interviews and focus groups), and small-scale activities (professional development and provision of selected ICT resources). The study piggy-backed on existing projects in each of the four participating countries. In Bangladesh and Nepal, those were projects focused on the use of ICT for teacher training, in Mongolia and Samoa, our task was to focus on projects introducing e-Resources (electronic teaching and learning materials) to better reach remote and isolated areas of the country with up-to-date teaching materials. Countries were chosen due to their specific geographic and demographic aspects to provide country context perspectives for the region. In the case of Samoa, this relates to its location as a remote island country with a small population. In the case of Mongolia to a small population inhabiting a vast and remote landmass. For Nepal relevant factors are the diversity of its topographic profile, coupled with a relatively low population density in the mountainous areas and relatively high population density in the flatlands ('*terai*'). In Bangladesh, important factors are its high population density and the flat, alluvial plains characterizing its terrain. Such aspects, among others, strongly influence the role and format ICT use can take to address education and poverty challenges. The study featured three technical components:

- Policy and strategy component (regional)
- e-Resources component (Mongolia and Samoa)
- e-Teacher Training component (Nepal and Bangladesh)

3. In Samoa, specifically, the study was to piggy-back on the Samoa SchoolNet and Community Access Pilot¹, funded by the ADB, and to implement study components one (policy and strategy) and two (e-Resources). In this context, the study as such was not an extension or follow-on for SchoolNet, which had involved five Samoan schools, but focused on strengthening and complementing investments already done, while primarily aiming at studying the existing approaches and lessons learned.

4. The study in Samoa is timely in providing critical information about lessons learned and recommendations upon completion of the first ICT in education project conducted in the country, and in advance of a future initiative already planned under the ADB-funded Education Sector Project II. The study provides a systematic insight into early experiences from participating schools and includes consideration of key factors both, internal and external to the schools.

5. Under SchoolNet, five Samoan schools had been provided with community and support in setting up a Community Learning Center (CLC). In average, each CLC was provided with a network of 10 Internet-ready computers (thin client configuration²), two PC servers, a video camera, a data projector, two printers, a fax/scanner, a photocopier, and uninterruptible power supply (UPS) devices for the servers. Three of the five schools had been connected via dial-up to the Internet and two of the schools, those in the capital city of Apia, via a wireless area network. SchoolNet had also provided training to ICT Administrators (teachers who volunteered and were appointed by their principals as the key teacher counterpart for the project), and a few teachers at each school. Training focused on (a) basic skills in computer and digital media, (b) using the computer as a teaching and learning tool, and (c) development of resources and lesson materials for selected subjects. ICT administrators, principals, and selected school committee members were also offered training on (d) managing CLCs at the school (business planning). In addition, SchoolNet had set up the SchoolNet portal and developed a number of e-Resources³ and collected links to electronic teaching and learning resources on the Internet, accessible via the SchoolNet portal.

6. Given SchoolNet inputs and study objectives, we conducted a number of activities in Samoa, guided by a site assessment and need analysis, to strengthen what had already been done. Our activities included (a) a one-day strategic planning workshop for participating principals, ICT administrators, and Peace Corps Volunteers (PCV)⁴ based at the SchoolNet schools; (b), a two-day strategic planning workshop for staff of the Curriculum Materials and Assessment Division (CMAD) at the Samoan Ministry of Education, Sports and Culture (MESOC); (c), a five-week (35 hours) ICT training program for CMAD staff; and (d), moderate equipment procurement for CMAD. Six schools were selected to participate in the study, the five original SchoolNet schools and one additional school, characterized by being an early ICT adopter school in the country. Via the study we aimed at providing an account and reliable documentation of lessons learned, good practices and successful approaches on integration ICT into education, on the basis of the project under investigation. Following study activities, we therefore conducted detailed case studies in each of the participating schools. We interviewed a total of 6 principals, 5 ICT Administrators (local teachers that ere appointed as technology coordinators), 12 teachers, 24 students, and 11 parents in our study schools.

¹ From here on also called "SchoolNet".

² A thin client setup features central servers on which all applications and data are hosted, while the individual (student) terminals, featuring a monitor, keyboard, and mouse, are directly connected to these servers for any significant data processing. This way, a Local Area Network (LAN) is created among the computers involved.

³ Nine Learning Objects and 15 adaptations of electronic learning materials have been developed. In addition, SchoolNet organized an inventory of useful sites for teaching materials (URL collection).

⁴ These are volunteers under the U.S. Peace Corp scheme. A number of PCVs serve in Samoa in areas of education and ICT. Some four to five of them are based at selected schools. Starting 2007, PCVs have been deliberately placed with SchoolNet schools to support ICT integration. More information can be found at <http://www.peacecorps.gov/index.cfm?shell=learn.wherepc.pacificislands.samoa.workarea>.

7. In addition to this study findings brief, a full country report is available. The report: “Provoking Change: Technology in Education Case Studies from Samoa”⁵, provides detailed information on the Samoa SchoolNet projects, the activities implemented under this study, information on the country and education system context and an in-depth presentation of study outcomes. The full report also provides a discussion of the outcomes in each of the dimensions under investigation and recommendations for future activities and research.

II. FINDINGS FROM THE STUDY

8. There are a number of common issues and approaches that were identified from the case studies. Below, we present these along some key dimensions, such as ICT environment, professional development, cost, and access. The below presents a summary of the responses from study participants across the six schools.

- **Stakeholder Buy-In and Local Ownership.** Schools are overall very enthusiastic about being part of an ICT initiative; principals, teachers, students, and parents alike. ICT administrators especially clearly have taken on ownership of the initiative and are fully engaged, often at considerable expense of personal time. Principals as well are strongly supportive of the initiative and are eager to make it succeed. Some participating schools also mentioned strong and positive engagement by their school committees and high interest and demand for access by their communities. For a variety of reasons, however, the nature of which may need further investigation, some of the principals seem to have difficulties negotiating issues of cost recovery and management of the CLC with their school committees and communities, and finding the necessary buy-in and engagement from these actors.
- **ICT Environment.** As it is, the ICT environment of the participating schools is not conducive to the successful implementation of ICT initiatives, unless some solutions are found to address prevailing issues. Problems with the external infrastructure in terms of electricity supply, telecommunications capacity, and transportation are especially difficult for the schools in the rural areas of the country. The fluctuating power supply and frequent blackouts are damaging the equipment. Poor or no telephone lines are barriers to Internet access. Irregular public transport makes it difficult for school staff and the community to access the CLC outside regular school hours. The general lack of Internet access or poor connectivity is a problem in all schools, with two reporting they are still waiting for the telephone line in the first place. Problems with the internal ICT environment include insufficient numbers of PCs and lack of maintenance services, according to study participants. Some of the ICT equipment, such as the photocopy machines provided, proved to be very valuable for the schools, not only in terms of their own needs, but also as a tool for revenue generation. Some of the equipment however, e.g. the video camera, does not yet seem to be fully made use of.
- **Professional Development and Training.** This is a priority and urgently needed for staff interviewed at all participating schools. Indeed, all schools raised the issue of the inadequate training received to date. Responses indicate that schools expect MESC to provide at least some further training, if teachers are to perform to expectations in managing and utilizing the CLC. Training required is in areas of computer skills for all those teachers who teach classes. Professional development

⁵ RTI International. 2007. *Provoking Change: Technology in Education Case Studies from Samoa*. Samoa Country Report. ADB TA6278-REG. Research Triangle Park.

in areas of management is especially needed for both the principals and the ICT administrators to assist them in their roles with regard to CLC management and administration. Instead of one-shot training activities here and there, a strong demand for on-going and continuous professional development has been communicated by study participants. Schools with PCVs with IT skills are fortunate and are making use of the volunteers for training their staff and teaching the computer studies classes. However, this strategy needs to be strengthened by a better matching and skill sharing with local school staff, to avoid capacity vacuums upon PCV departure. There is some informal training occurring where teachers are being helped and trained by the school's ICT administrator or other experienced teachers, but still on a rather small scale and often in a more unstructured way. ICT administrators, especially, voiced a strong demand for more formalized, certificate-based training programs that give them not only the skills, but also the recognition needed to fully take on their roles. At the same time, training that had been provided so far has allowed at least ICT administrators to achieve a foundational level of competence that can be expanded on. They in turn were able to start imparting some of their skills and support their colleagues.

- **Teaching and ICT.** To date, the ICT facilities have been of most use as a place for basic computer skills training for teachers and students. Still, the majority of teachers at the participating schools have yet to be trained or given lessons in the basic usage of computers and other available ICT equipment. There are pockets of ICT integration practices happening at schools, such as geography or English classes at Asau College and Mataaeveve College being taught in the computer room and making use of the equipment for illustration, or a teacher at Amoa College using the projector to more effectively visualize “global patterns of natural events” for his class. However, these, to date, are extremely rare. Only some principals, ICT administrators, and teachers knew about the SchoolNet portal and the learning objects and e-Resources provided there. To most study participants, lack of awareness and appropriate Internet connections are the main barrier concerning this specific resource. Lack of appropriate Internet in general is considered the main barrier to teachers researching for additional materials on the Internet or communicating and collaborating with each other.
- **Access.** In terms of time and space, access was highlighted by interviewees, staff, students, and community members alike, as being a problem. Although some schools have scheduled and planned periods for teachers and students to use the CLC, this does not meet the demand voiced by study participants. Teachers, students, and parents want to use the facilities more frequently. Schools are forced to prioritize and restrict access for the most part because of an apparent lack of human resources to provide the support and oversight needed during those times. Where such capacity was available, after-hour transportation issues for ICT administrators and facility managers are aggravating the problem.
- **Cost.** For the community, students, and teachers as individuals, cost or affordability did not provide an obstacle to access, many considering the fees and regulations in place quite appropriate and manageable. However, cost is a big problem for the school as such. Strong concerns about the increased electricity bill, communication expenses, facility and hardware maintenance, as well as allowances for the ICT Administrator, were expressed by all participating schools. At the same time, parents seem to be willing to give extra funds for the sake of providing their children access to this technology.

- **Sustainability.** It is recognized that local staff must be appointed and trained for long term sustainability. Three schools that “lost” their PCVs are examples of the gap arising if there is no one to continue. For example, Asau College has been left with a huge gap, and finding a qualified person to step in remains a top priority of the principal—as it has been for the last year. The issue of sustainability of the facilities also includes issues of hardware and equipment: the repair and replacement of damaged or worn out equipment is an area that needs to be included in management plans and budgets. However, schools have not yet fully managed to engage in planning for long term funding strategies.
- **Policies and Strategies.** There are still major gaps in schools’ plans to provide access and capacity not only for the community, but also for their students and teachers. Principals are asking for more support in developing policies, strategies, and appropriate management models. The activities conducted in areas of policies and strategic planning under SchoolNet and this study provided an important platform for stakeholders to share their views, exchange ideas, and gain experience in developing such models. However, more support in this area had been requested.
- **Community Access and Awareness.** As indicated above, community access has yet to be implemented in most of the participating schools. Barriers identified include the lack of a qualified trainer to provide classes after school hours and the absence of a longer-term strategic plan to extend the service. Furthermore, some schools are prioritizing access for staff and students over access for the community, while at the same time struggling with issues of cost and earning revenue to sustain services for the school, which the latter would provide. In some schools, however, information exchange with parents and communities has not yet been sufficient in terms of generating awareness about the initiatives taking place. The awareness programs, especially the TV advertisements that had been developed to disseminate information on the SchoolNet pilot project, have been successful in raising awareness among communities and played an important role in generating interest and demand. The community consultations conducted at the outset of the SchoolNet initiative have also been positively noted by study participants.
- **System Support.** A key challenge, according to the participating schools, is the lack of involvement and support they receive from the ministry. School representatives also seem to not be entirely clear on roles and responsibilities and to whom to turn to when help and support is needed.
- **Private Sector Involvement.** According to the participating schools, vendors selected under the SchoolNet pilot project have been very diligent in following up on their maintenance and support responsibilities. Some have even gone beyond that, for example, by providing a school with some additional computers. Apart from these examples, schools did not mention any collaboration with the private sector.

III. CONCLUSIONS

9. Overall, we found that schools are very enthusiastic about being part of an ICT initiative, despite still facing many challenges. Especially ICT administrators at the schools have taken ownership of the initiative and are fully engaged, often at considerable expense of personal time. Schools are challenged, however, by a variety of infrastructural issues such as power outages and lack of telephone and Internet access, which provide obstacles to effective use of ICT. Schools also struggle with their own limited capacity to optimize use of the technology to

enhance teaching and learning, due to a lack of appropriate professional development. While basic computer skills have been developed by a number of teachers, they have to date not received enough training to use the technology for their own productivity and even less so to enhance the learning of their students. ICT administrators and principals are also looking for more support on technology management and organizational integration of ICT. Such support is needed in order to align the aims of ICT initiatives with overall school development objectives. This is something still lacking at all schools.

10. A small number of schools have already started to provide access to the community, which are expressing a growing interest and demand. TV advertisements proved to be an effective means to generate such curiosity. Community access and provision of technology-enhanced services, such as photocopying, provide small but important budget contributions for schools. This revenue is critical to cover ongoing costs, such as toners and paper. The majority of parents seem to be willing to support the school beyond regular school fees to help cover some of the additional costs in return for their children being able to make use of the new tools. Those costs are a major concern not only of school principals, but also of school committees. However, organizational challenges, such as lack of personnel to oversee the community access, coupled with external challenges, such as lack of after-hours public transport, constitute critical barriers to further community, teacher and student access. Finally, schools also struggle to clarify roles and responsibilities vis-à-vis the larger education system and are unclear about the support that they can expect from the government and other actors in the country. The study found that great strides have been made on national level in formulating guiding policies for the use of ICT in education. At the same time, important follow-up activities, such as targeted budget allocations, the harmonization of school development strategies with national education development objectives, and the necessary organizational adjustments (distribution of roles and responsibilities) within government and other education stakeholders, are not yet fully implemented.

11. Our study outcomes illustrate important experiences and lessons learned under existing ICT in education initiatives in Samoa. On the basis of the case studies, there is clear indication that some of the approaches implemented have been successful, mostly on a school level, in contributing to generating an enabling environment for ICT as a catalyst to enhance teaching and learning. At the same time, the study identified areas where approaches need to be fine-tuned or changed to better meet local needs and educational development goals. With this in mind, a number of critical issues have been raised that should be considered before ICT initiatives in their current form are expanded to additional schools. Overall, there is reason to believe that if such considerations and lessons learned are taken into account, necessary steps undertaken, and appropriate interventions are put in place, ICT can prove to be a valuable tool and lever for enhancing other efforts in improving access to and the quality of education in Samoa.

For more information, contact
Carmen Strigel
Study Director, RTI International
cstrigel@rti.org