

Developing Localized ICT-enabled Content for e-Health: The Molave WASH Experience

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Introduction

The Philippines, an archipelago of 7100 islands in Southeast Asia, faces a new dawn of opportunities as it competes with the rest of the world in the Information Communication Technology (ICT) arena. Industries such as call centers (dubbed the Philippine “Sunshine Industry”), Foreign Medical Transcription services and even the hugely popular multiplayer on-line gaming systems require the rolling out of the needed ICT architectural backbone and support systems and a readily available pool of ICT-trained and skilled workforce.

The realization of an ICT-skilled and knowledgeable populace is an uphill climb, as there remains the issue of the digital divide - ICT access and infrastructure are limited to the urban centers, accessible only to those who can afford them. Far-flung communities which are only reachable through rough roads, island villages and farmlands accessible only by hours’ worth of commuting through pump boats are left behind in the ICT-revolution, seemingly stuck in the past and in the old ways.

The Philippine government has realized this need and has committed - in its IT action agenda - to ensure that every business, government agency, school and home would have access to information technology by the end of the 21st century. With 70% of the population living in rural areas where ICT and Telecommunications infrastructure is inadequate, the best and preferred approach is to the provision of access for the whole community.

A 5-year pilot project was supported by PAN Asia Networking to establish four multipurpose community tele-centers in the island of Mindanao and bring ICT to the rural villages. The MCTs contain many resources, including a public telephone office, a reading center or library, information about the barangay, internet access to information about agriculture, education, health, and livelihoods and an internet café. The goal of the project went beyond ensuring connectivity to also spur content development at all levels and create and environment for two-way communication and interaction (PAN 2006).

Water, Sanitation and Hygiene in Distance Education

The UN Millennium Development Goals (MDGs) adopted by the UN World Summit on Sustainable Development in Johannesburg in 2002 have firmly established Water and Sanitation issues on the global agenda, the call for halving the proportion of people without safe water and sanitation by the year 2015.

Past initiatives have been made by many local and international organizations and governments in order to address Water, Hygiene and Sanitation problems. Traditional avenues of communication and information dissemination such as radio, television and print have been used but these were only temporary, stop-gap measures that mostly have only touched most people superficially. Issues regarding water, sanitation and hygiene have been tackled separately.

Water, Sanitation and Hygiene education is an important entry point in providing health-related content as a medium for research on the effectivity of Distance Education. Water, Sanitation and Hygiene issues are pressing concerns for many rural communities, and

this would be a good content to be developed and used in the MCTs. But in order to effectively bridge the knowledge and information gap between the haves and have-nots, providing the hardware and internet access is just the beginning. People should have access to relevant and appropriate content that is localized to their situation (i.e. through production of materials in the local language).

ICT and Distance Education in the Philippines

Open and Distance learning, due to its various uses of technologies, systems and approaches, has varied definitions. However, it is basically characterized by:

- **Separation of teacher and learner in time or place**, or in both time and place;
- **Institutional accreditation**; that is, learning is accredited or certified by some institution or agency. This type of learning is distinct from learning through your own effort without the official recognition of a learning institution;
- **Use of mixed-media courseware**, including print, radio and television broadcasts, video and audio cassettes, computer-based learning and telecommunications. Courseware tends to be pre-tested and validated before use;
- **Two-way communication** allows learners and tutors to interact as distinguished from the passive receipt of broadcast signals. Communication can be synchronous or asynchronous;
- **Possibility of face-to-face meetings** for tutorials, learner–learner interaction, library study and laboratory or practice sessions; and
- **Use of industrialized processes**; that is, in large-scale open and distance learning operations, labor is divided and tasks are assigned to various staff who work together in course development teams. (Commonwealth of Learning 2001)

In the Philippines, there have been no known initiatives by the national government to provide ICT-enabled learning to Non-formal Education; the cash-strapped Education Department currently gives more focus on fulfilling the need for more text books and classrooms, which have been seriously deficient since the early 90s. Efforts in the use of ICT in the Philippine Public School system is generally limited to basic education as introduced in area of study in Home Economics and Livelihood Education (HELE) at the elementary level, and in Technology and Home Economics (THE) at the secondary level (Andrada, 2001). Subjects are limited to the study and use of computers, and not with the actual use of ICT as tools for teaching other subjects, such as Math, English, or Health and Hygiene Education.

Unfortunately, distance learning technologies for non-formal education geared to the poor, out-of-school youth and the functionally-illiterate are not that developed in the country, particularly computer- and internet-based approaches. The more established media like television and radio are used. However, many people do not see these media as educational tools, but more for entertainment, providing an escape from daily hardships. Leachem (2005) reports that he has not come across any any research on DE for non-formal education in the region. Our experience is that there are no real models for us to follow in the region. In fact, we believe that this project has been quite innovative in its approach, and has actually been a trail-blazer that other institutions are interested to learn from and replicate.

There are a few government agencies that produce materials for non-formal education, including the ALS, the Technology and Livelihood Resource Center (TLRC) and the Technical Education and Skills Development Authority (TESDA). There are also a handful of Catholic organizations that provide technical skills and livelihood programs for the urban and rural poor and youth. However, their IEC materials are mostly in paper and book forms. TESDA and TLRC have compiled some of their livelihood modules and workbooks into CD-ROM, but these are merely the transfer of written materials into digital form, and are not placed on the internet. ALS, through the Sandiwaan Center for Learning and the De La Salle

University (DLSU) Computer Center have collaborated to convert some of the 150-plus modules on non-formal education into multimedia format. However, the materials are in English and have tended to use internet technologies that are bandwidth-hungry, with lots of images, moving elements and Java-based scripts that will be difficult to use in a community with older computers and low-bandwidth connections. The DLSU initiative does not have a research component, so they were unable to study the effectiveness of the materials they have produced. Other educational institutions such as the Ateneo de Manila have also developed in-house e-learning modules for elementary students as part of a blended learning experience for their students, as a supplement, and not for distance education.

A study conducted by the Southeast Asian Ministers for Education Organization (SEAMEO) on the effectiveness Non-Formal Education System (NFES) Learning modules indicated that there is still a need for additional supplementary materials to enhance the learning experience, additional content with activities that are practical to the users, and revisions to include more thorough discussions of topics, as well as more in-depth delivery of information. While these NFE materials were designed for self-instruction, learning through the modules still require considerable teacher-student interaction time, therefore using the modules for distance education will not be effective. Thus, there is a need to come up with an ICT-supported non-formal distance education module that will hopefully address this gap.

The Research Project

The Molave Development Foundation, Inc. (MDFI) a non-stock, non-profit organization formed to promote, health promotion, education and advocacy using information and communications technologies for poverty reduction and the empowerment of people, has embarked on a project entitled “Technology-Supported Distance Education and Training in Water, Hygiene and Sanitation (The Philippines).”The MDFI also acts as the Training and Resource Center for Southeast Asia of the Water, Sanitation and Hygiene For All or WASH Campaign, a global advocacy effort of the Water Supply and Sanitation Collaborative Council (WSSCC).

The Project is funded by the International Development Research Center (IDRC) of Canada. It is a two-year study to determine the effectiveness of using Information and Communications Technologies (ICTs) as a tool for teachers and students to teach and learn, through distance education, about WASH issues, and in effecting changes in the knowledge, attitudes and practices of people with regards to proper hygiene and sanitation.

This project explored the potential of ICTs and distance non-formal education using digital and electronic media. The project provided technology transfer, livelihood and entrepreneurial skills training, social marketing, and development of modules and educational materials to enhance the delivery of WASH information through distance non-formal education strategies. Technologies used in the delivery of the modules include: interactive video CDs, multimedia websites, remote videoconferencing, instructional programs, and short messaging services (SMS).

Research took place in two study areas: one in an urban slum, and one in a rural area. In both study areas, the intervention being studied is the WASH Interactive Module, developed by the research team and delivered in digital format through distance education modes.

This paper discusses the experiences, successes and learnings of the research project that was implemented on the rural study site, where the project focused on qualitative measures to assess the effect of the ICT intervention to the lives of the residents.

Research Objectives

The research project identified issues, problems, opportunities, resources and strategies for deploying distance education technologies (tools, methods and systems) to empower groups and organizations, representing both gender groups, involved in non-formal education, specifically in the training and teaching on health, hygiene and sanitation to distant Filipino communities.

The project also investigated how ICT-enabled distance learning will contribute to the improvement of the community members' knowledge, attitudes and behaviors towards water, hygiene and sanitation issues; enhance learning capacities through the use of ICT-enabled learning materials; address the issues of connectivity and lack of relevant content for use, and explore other opportunities where ICTs can play a role in developing community participation and ownership, as well as formulate strategies for operational and financial sustainability of the Multipurpose Community Telecentres (MCTs).

Study Sites

The Research required piloting the IEC materials and the ICT and distance non-formal education methodologies in 2 areas: an urban setting in Manila, and in a rural locale. Both areas, which were identified by MDFI and its partners, have existing community-based organization and existing ICT infrastructures.

Urban Research Project Site - The Sandiwaan Center for Learning

The Sandiwaan Center for Learning was established to fill the urgent educational needs of scavenger families in Smokey Mountain and the surrounding squatter areas. Smokey Mountain was a vast garbage dump in the heart of Metropolitan Manila. Twenty-five thousand people used to earn their living from the site by scavenging amongst the trash heaps. Even small children spent their waking hours picking up pieces of plastic, metal and paper to be sold for reuse or recycling in order to survive.

The Sandiwaan Center for Learning has been managing learning groups for out-of-school youth and adults at Smokey Mountain and they are one of the first of the few that made use of the learning modules developed under the ALS Accreditation and Equivalency system. At present, they have a facility in the Permanent Housing Estates in Smokey Mountain, wherein they have 30 computers used for education, in partnership with ALS.

Urban Site Project Partner - Alternative Learning Services (ALS) Manila

Non-Formal Education has been in existence in the Division of City Schools, Manila since 1948 during which time it was known as Adult and Community Education (ACE). In 1952, a division supervisor was appointed to take charge of the programs. With the presence of a supervisor, Non-formal education functioned actively signaling the full operation of the Non-formal Education Services of Manila.

In 2004, Executive Order number 356 renamed the Non-formal Education Services to Alternative Learning Services (ALS).

The ALS is mandated as a parallel learning system to provide a viable alternative to the formal education instruction, ensuring that all the learning needs of the marginalized learners (deprived, depressed and underserved citizens) are addressed.

Currently, ALS-Manila focuses on 3 main programs:

- a) Basic Functional Literacy
- b) Livelihood Skills Development
- c) Development of a Sound Values System

Rural Research Project Site - The Maguinda Multipurpose Community Tele-center (MCT)

The Maguinda Multipurpose Community Tele-center was established on April 2000, through the joint effort of Local Government Units of Butuan City and Agusan Del Norte, Philippine Council for Health Research and Development (PCHRD), United Nations Educational, Scientific and Cultural Organization (UNESCO), and International Development Research Center (IDRC), together with the support of the Barangay Officials and residents of Barangay Maguinda. The vision of the Barangay MCT Project is to connect people and organizations for rural development, people empowerment, and poverty alleviation through information and communication technology (ICT)

At the end of the project on 2001, the community tele-center and its facilities were turned over to the Barangay. DOST, however, continue to provide the center and its volunteers technical assistance on a per-request basis.

Pre-Implementation Activities

Different pre-installation and preparatory activities were undertaken for the pre-implementation phase of the Research, paving the way for the project's streamlining of its implementation plans. Through these activities various issues, problems, opportunities and challenges were identified.

Site visit and equipment inventory

The project team visited both urban and rural sites to ensure that the locations have the basic requirements needed by the Research Project to facilitate its implementation. The equipment inventory enabled the research team to assess if the existing facilities and equipment are enough for the implementation phase. The inventory also covered software, internet accessibility and other multimedia equipment that can be used for learning, such as television, VCRs, DVD layers, radio and scanners. Consequently, The WASH Interactive Module was designed with minimum hardware and software requirements.

Organization of Stakeholders' Meetings

These activities were organized separately in Manila and Maguinda. The aim is to level-off expectations, clarify the roles and responsibilities and discuss other opportunities with the partner organizations.

Training on Data Collection Methods

The Teacher Community Coordinators (TCCs) and the Maguinda MCT staff were rigorously trained in data collection methods. This is to ensure the efficient and accurate gathering of data from the research tools used such as survey and interview, and spot-check forms.

Development of an Online Research Tool

MDFI also developed an online, web-based Data and Research Management System called WASH Research On-line Survey (ROS) System. This system is a PHP-based, open source, server-side, HTML-embedded scripting language used to create dynamic Web pages. This system enabled the Research team to keep an online database of the study population and generate the reports needed by the research.

Development of the WASH Interactive Module

The first WASH Interactive Module, entitled "Your Health Is In Your Hands", was produced in collaboration with the Teacher Community Coordinators (TCCs) of the Alternative Learning Services of the City of Manila, and community leaders and members in Smokey Mountain and Maguinda.

The WASH Module has 6 sub-modules on the following topics:

- Personal Hygiene
- Dengue Fever
- Diarrhea
- Scabies
- Typhoid Fever
- Environmental Hygiene

Information such as disease causation, symptoms and prevention were discussed through the use of multi-media elements such as music, voice, flash-based animation, and video clips. These elements accompanied lessons that were rendered in a conversational and lively mood, thus enhancing the learning experience and making the process more enjoyable, even for adults. A simple point and click system of navigation using a mouse, and voice narration and music makes the module user-friendly and uncomplicated even for first time users or users with no previous experience with a computer, or even for those who cannot read or write much.

From the original Filipino Language version, the WASH Module was also translated into English and Cebuano, the dialect used in Maguinda, thus making it easier for the learners to understand the various contents in their native tongue.

Beta-testing

A Beta-test of the first WASH ICT Module involved ALS clientele from test communities having similar demographic characteristics with the Smokey Mountain study site, to assess the effectiveness, user-friendliness and appropriateness of the produced ICT materials before being formally launched and introduced to the implementation site in Manila.

Baseline Survey

The research team conducted a baseline survey of the participants to get the socio-demographic data and to gain an insight on their attitudes, practices and behaviors towards water, hygiene and sanitation issues and their current knowledge and skills on using computers and the internet.

Implementation of WASH Modules (Intervention Phase)

Urban Study Site

The Research Project recruited a total of 500 students enrolled in Alternative Learning Services of District I in Manila. These students or “clientele”, comprise the MDFI study population.

The participants of the research were selected using the following criteria, and were screened using a screening form:

- 12-30 years old, male or female
- Must be a resident of Smokey Mountain resettlement area up to 1.5 km radius of the Learning Center, for at least 2 years
- Must be “functionally literate” - Students having the cognitive, effective and behavioral skills and competencies to improve the quality of their life and that of society (ALS 2004).
- Out-of-school, unable to finish formal schooling, not enrolled in formal education for at least the past 2 years
- Willing to participate in the study

The study population was then divided in to 2 groups.

The 1st group is made up of 150 students, of which a baseline study on their knowledge and attitudes towards water, hygiene and sanitation issues, have been collected. The baseline collection of data such as demographics, socio-economic and other pertinent information was also included, using a pre-tested Interview Schedule Form. The 2nd group of 350 students with the same socio-economic and demographic characteristic has been identified by the TCC in another area, undergoing the same baseline study.

1st group (ICT Intervention/Intervention Group)

The research design that was used for 150 students that studied WASH using ICT (Intervention) was a *Quasi-Experimental Design*.

1. Before accessing the contents of the WASH Interactive Module, the students answered a pre-intervention quiz to determine their knowledge and a Likert-type survey to assess their attitudes on water, hygiene and sanitation issues. (
2. Quantitative measures using spot check forms were also conducted by TCCs prior to their exposure to the WASH ICT-enabled modules. This was used to ascertain the student's actual hygiene and sanitation practices and behaviors.
3. The learners were then "exposed" (for an estimated period of 1-3 days) to the WASH ICT-enabled modules as the intervention, using the computers of the Sandiwaan Learning Center. At this time, the ALS implementers ensured that information learned by this group did not spill out to other learners who have yet to undergo the same process.
4. After the said period, the group took a post-intervention quiz, as well as post-intervention survey on attitudes to assess if there were changes in their knowledge and attitudes after being exposed to the ICT-enabled modules, using the same data collection instruments.
5. A month after exposure to WASH ICT Modules, the TCCs conducted a second spot check to ascertain their current hygiene and sanitation practices and behaviors. A 3rd spot check was accomplished after 2 months for the same purpose, again using the same spot check forms.

2nd Group (Traditional WASH IEC Module/Comparison Group)

All the students of the ALS pass through the ALS-WASH Printed Module as part of their learning under the non-formal system. However, for the purpose of the Research Project, ALS identified 350 students with the same socio-demographic information (as the 1st 150 students) and was designated as the "Comparison" group.

The comparison group underwent a baseline study to determine their knowledge and attitudes towards water, hygiene and sanitation issues, collecting qualitative data such as demographics, socio-economic and other pertinent information.

1. Before accessing the contents of the ALS-WASH Module, the answered a pre-quiz to determine their knowledge on water, hygiene and sanitation issues.
2. The group was then be "exposed" (for an estimated period of 2-4 days) to the ALS-WASH Module in print form, and with face-to-face classroom interaction with a TCC, as the intervention.
3. After said period, the group again took a post-intervention quiz, survey and focus group discussion, to assess if there were changes in their knowledge and attitudes after being exposed to the learning module. Due to time, resource and other logistical constraints, spot checks were not carried out with the Comparison Group.

The process enabled the project to gain both quantitative and qualitative data. The quantitative data were gathered from the pre and post-tests, survey forms, spot checking and

structured observations. Focus group discussions and collecting stories comprised the qualitative output of the research.

Post Implementation Phase

Post-implementation Focus Group Discussions were conducted to both the case and case groups to gather the learners' changes in attitudes and behaviors after being introduced to the learning modules. Focus group discussions were also conducted in the urban study area of Maguinda for the same purpose.

Results and Discussion

The results of the research with regards to the improvement of knowledge, attitudes and behavior of students were encouraging. In both the urban and rural sites, there was a significant increase in both knowledge and attitudes in water, hygiene and sanitation, as determined using quizzes and attitude survey forms before and after intervention using the ICT-enabled WASH distance education module. In Smokey Mountain, the urban study site, the effectiveness of the ICT-enabled module was also assessed in comparison to the traditional, face-to-face and print-based method of teaching water, hygiene and sanitation, again with regards to levels of improvement in knowledge and attitudes. The study revealed that although the level of knowledge improvement using ICT-based modules was good, it was still not as significant as improvements amongst non-formal education students who studied using the traditional face-to-face approach. But an assessment of attitude revealed that there a significant improvement in attitudes towards WASH issues for those who took the e-learning module, as compared to those who studied using traditional methods. Preliminary analysis on the changes in behavior amongst students who took the e-learning modules in Smokey Mountain also show a significant improvement in behavior scores with regards to personal and household hygiene, as well as environmental sanitation. These findings underscore some cultural and gender dimensions on education and health promotion. Because the content was about water, sanitation, health and hygiene, gender differences with regards to knowledge and attitudes to these topics were notable. Women seemed to be more interested in the content itself, while men were more concerned with the mode of delivery, which was through ICTs. Gender roles also affected the learning process. Hygiene and sanitation at home were generally seen as the domain of women, while with regards to technology, it seemed that males were more ready or curious to try out new tools. The value of computers were also seen a bit differently. Male participants see computers and the Internet as tools for them to potentially become more employable, while female participants see these as tools for communication, as a way that their voices and opinions could be heard. As a tool for distance education, the study revealed that students of both genders would still prefer some face-to-face interaction with teachers or facilitators, and that a blended learning approach would be appreciated, wherein ICT-enabled materials would form part of a learning package that an educator would use, alongside printed media, audio CDs, and other pertinent materials. But they greatly appreciated the fact that they were given opportunity to use computers and to study about WASH using ICT-enabled distance education. The whole process has empowered students, most of whom have not used a computer. This experience has given them a sense of accomplishment, and this is reflected in an improvement of their attitudes with regards to WASH issues. We can thus summarize the results as follows:

Smokey Mountain Study Site

Quantitative data analysis of results gathered from the survey forms, pre and post intervention quizzes between the ICT Intervention Group and the Traditional Module Comparison Groups indicated that:

Knowledge Test

- On average, there was an increase in the post-intervention knowledge scores among the students in Traditional Group.
- On average, there was an increase in both post-intervention knowledge scores of male and female students in Traditional Group.
- There were 67% male students and 64% female students with increased post-intervention quiz knowledge scores in the Traditional Group.

- On average, there was an increase in the post-intervention quiz knowledge scores among students in ICT Group.
- On average, there was an increase in both post-intervention quiz knowledge scores of male and female students in ICT Group.
- In the ICT Group, there were 53% male students and 59% female students with increased post-intervention quiz knowledge scores.
- The proportion of male students with increased post-intervention quiz knowledge scores was higher in the Traditional Group than the ICT Group.
- The proportion of female students with increased post-intervention quiz knowledge scores was higher in the Traditional Group than the ICT Group.

Attitude Survey

- On average, there was an increase in the post-intervention attitude scores among the students in Traditional Group.
- In the Traditional Group, there were 25% male students and 45% female students with increased post-implementation attitude scores.
- In the average, there was not much increase in the post-implementation attitude scores among students in ICT Group.
- In the ICT Group, there were 44% male students and 55% female students with increased post-implementation attitude scores.
- The proportion of male students with increased post-implementation attitude scores was higher in ICT Group than the Traditional Group.
- The proportion of female students with increased post-implementation attitude scores was higher in ICT Group than the Traditional Group.

Behavior Spot-Check

- Based on the Analysis of Variance, results gathered from 3 separate spot check periods (one spot check on each participant at baseline, one a month after the intervention, and another 2 months after) show that the scores recorded from students when the data collectors visited their houses were statistically different across the 2 periods. Therefore, there has been a significant improvement in the personal hygiene practice and environmental sanitation scores of household members who learned about WASH using ICT-enabled distance learning technologies.

Maguinda Study Site

Due to the small population size of Maguinda, and a consequent small sample size computation of 60 students, the research team found it difficult to approach the research through quantitative methodologies. Qualitative methods such as Focus Group Discussions and Key Informant Interviews were employed as methods for data gathering and analysis. These results paint a good picture as to the participants' attitude and behaviors towards health and sanitation after the learning sessions using the WASH modules.

Post-Implementation FGD Highlights of Results:

- Many of the participants articulated that the lessons in Water, Sanitation and Hygiene had a positive effect or change in their knowledge and attitudes in terms of personal hygiene, eating habits, drinking water, and personal protection.
- They found the exercise very useful and the opportunity of using the computer a very enjoyable and productive experience.
- As stated by the group, WASH learning gave them source of empowerment in learning information through the use of ICT, which they think only people from the urban centers can have access to.
- Despite problems encountered, both technical and methodological, all of the participants were able to finish the modules and were satisfied with the lessons.
- They were enthusiastic to learn more topics aside from WASH.
- They wanted to share the knowledge acquired from the learning to their families and neighbors as well as encouraging others to learn WASH through ICT.

This study can be considered as innovative, from several points. We have employed community-based participatory methods and transparency to ensure that all partners and stakeholders are intimately involved in all phases of the research, and that all inputs with regards to content development and research design are taken into consideration. We have used a combination of hardware, software and human resource development and capacity building in order to achieve our objectives. The WASH Content that as developed was not only converted to e-learning, but was also tested in the pilot communities in order to determine their effectiveness. This study has also shown that teachers, specifically those who are in the non-formal education sector, have the capacity to be active part of content development and to also be researchers. The generally encouraging findings have emboldened the project partners to advocate to more organizations and national agencies to advance the agenda of e-health and distance education in the country. From a scientific perspective, the results of this research adds to a growing, albeit very rudimentary, body of information on the use if ICTs for non-formal education and social development. Unfortunately, there is little research being done in this area, and we hope that the results, learning and experiences that we have gathered from this study can be used as a basis for more research on the impact of ICTs on distance non-formal education. From a policy standpoint, the findings of this study can be used as a guide for advocacy initiatives, especially in convincing government, the health and education and the private sectors, as well as grassroots and local organizations, to convince everyone of the need to provide content that is appropriate to the needs of non-formal learners, especially the poor and the marginalized, in order for these people to participate in the Information Age, as an innovative approach to bridging the digital divide.

As a result of the success of this study, MDFI and its partners and community stakeholders in Smokey Mountain and Maguinda have come up with 4 more e-health modules in CD-ROM format, and translated into English, Filipino and Visayan. The series is entitled: *Non-Formal Distance Education Series on Water, Sanitation & Hygiene – MDFI-ALS Interactive CD-ROM*.

Vol. 1: Your Health Is In Your Hands – *A Module on Health & Hygiene*

Vol. 2: Your Health Is In My Hands – *A Module for Hygienic Food Preparation*

Vol. 3: Safe Water, Safe Environment for My Healthy School – *A Module for Hygiene and Sanitation in Schools*

Vol 4: Health and Hygiene at Home - *Hygiene and Sanitation Module for Mothers*

Vol 5: Health and Safety At The Farm - *Health and Safety Module for Farmers*

Learnings & Recommendations

To run a research project dealing with technology and education, health, hygiene & sanitation, does not merely entail the knowledge and expertise in the said subjects. Any project proponent should always bear in mind the different factors that will directly or indirectly affect the procedures, processes and outcomes of the project.

In the conduct of the Research Project, the following learnings were realized:

1. *Technical and student support is a vital component in running ICT-based learning systems.*

And ICT-enabled distance learning system is not designed to totally remove person-to-person interaction and hands-on assistance. Technical problems and learning concerns will arise from time to time while these systems are being used. Therefore, a provision for technical support (online, phone-assisted or personal), should be established so that users and learners will know where to go to or who to ask for assistance to ensure that usage and learning will not be hampered.

2. *The Technology used should be designed and customized according to the learner's needs and skills.*

Content developers should be sensitive to the social and cultural diversities of the users and learners. This does not merely entail translating available content to the local language, but producing learning materials with content that learners are familiar with.

3. *Technology still has its limitations.*

The most efficient implementation of an ICT-enabled learning system maybe accomplished using the most direct approach and simplest technologies. While a multi-media rich learning module is an effective tool for delivering messages and lessons, technical issues such as limited bandwidth or even non-existent internet connection, power interruptions, corrupted system files and the like can cause delays. System back-ups and alternative processes and access technologies should be considered, planned and readily available.

4. *An ICT-based learning module will be more effective if combined with teacher-student interaction and other learning resources (blended learning).*

Due to technology limitations and socio-cultural realities in the Philippines, it is not yet possible to rely exclusively on an ICT-enabled learning system that operates with minimum human intervention and interaction. For now, learning through ICT-enabled modules should have a balance of teacher assistance, activities and interaction. This is necessary especially when students require additional information and help in topics that are not clear and of which the system could not provide for. This is especially true in the non-formal education setting, where motivation for self-learning is harder to elicit as compared to those who take distance programs in higher education.

5. *Design and produce learning materials that are user-friendly and enjoyable to use for both learners and teachers through a bottom-up, community-based approach.*

What is really important - more than the modules or computers or internet hardware that were provided - was the capacity of the individuals and the community that were developed through the project. The project was successful because of the introduction of processes and facilitated with the barangay and the MCT. The community as a whole, and not just the MCT volunteers and learners, becomes an integral part of a Community-Based Participatory Research and got to be deeply involved in the research as active participants, and not just passive recipients of grants or guinea pigs who had no say in the process or were not going to be informed of the outcomes.

6. *E-Health modules produced through community-based approaches are very useful and when designed and disseminated properly, can have a lasting impact on changing a person's attitudes and behavior towards health, hygiene and sanitation.*

Institutional Support

This study has shown that while the country is in the infancy stage in terms of providing ICT-enabled distance learning, we are off to a promising start. Thus, increased efforts in scaling-up these types of projects should be developed and supported by more NGOs, Funding Agencies, private organizations and government entities. There is vast potential for scaling up & replication of these kinds of undertakings to other communities with similar or even greater needs. IDRC can take a lead in the region, by bringing together different players in distance education and e-health.

Decision-makers, policy-formulators and development organizations can play a big part in this progress by coming up with policies and assistance which will provide opportunities for improved telecommunications infrastructure, affordable and efficient ICT backbone and service provision, technical support and education. The success of the Multi-purpose Community Telecenter in Maguinda can be replicated around the country through the formulation of better policies in setting up, managing and sustaining other tele-centers in the country.

If individuals and communities are empowered by the information technology revolution, they can contribute to the economic lifeblood of country and will not be merely

recipients of assistance. They will have a bigger world view and will not be limited to the confines of their homes, work or their communities. An empowered community can work towards self-sufficiency, efficient governance and economic prosperity.

We also wish to advocate and propagate the experience we had, especially in Maguinda. We have written up a case study on our research and capacity development work in the MCT (please see attached document). We believe that our learnings here offer valuable insights and suggestions on how MCTs can become sustainable hubs of information and education for the community. We believe that one way of ensuring continued community support and participation is for the MCTs to act, not only as information hubs, but as content development incubators where community members can decide and design e-learning and other materials that is appropriate to their own needs.

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