Issues related to local language training in the use of ICT

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The World Summit on Information Society called for the creation of an 'inclusive information society'. From monks to government officials, to students and faculties to the visually-impaired, and from rural communities to end-user groups in cities and provinces, these and all other sectors of society should be able to use ICTs in their everyday work and play, teach and learn from others, and to create and access online content. An important modality for realizing this vision is local language training in the use of ICT. And to ensure that local language learning is effective, a review of related literature on the following is necessary: (a) needs assessment; (b) information dissemination; (c) content availability and accessibility.

Needs Assessment

In the field of social science, needs assessment is a research tool that is population-specific but systematically-focused, empirically-based and outcome-oriented. (1996: Reviere, ed.). It is essentially a problem-identification process to achieve "what should be?" from "what is?"; what problems exist and almost always, explains its existence so solutions are created. It is the process of measuring the extent and nature of the needs of a particular target population so that services can respond to them.

To be truly effective, however, it is important to be clear about whose needs are the focus of the assessment as this is essentially the goal of the exercise. There is also the challenging task of "identifying and clarifying "need" from "want" and "value."

Therefore, the involvement of stakeholders is critical in the provision of end-user ICT training. According to Reviere, there is the need to involve as many stakeholders as possible to achieve the desired goals of a needs assessment. Stakeholders are "recipients and users of the services", including those who shall find the exercise useful. Involvement should engage representatives from every possible and relevant group so the feeling of "ownership" is achieved. Once they own the exercise, their feeling of responsibility is fostered, and they are expected to cooperate. At the end, this sense of ownership translates into empowerment.

Why do a Needs Assessment?

Essentially, needs assessment identifies the needs of the target groups, help prioritize those needs vis-à-vis available and future resources. It also develops into an implementation plan that outlines how these identified needs shall be addressed in the long-term. In the context of PanL10n Project, it is important to do a Needs Assessment for end-user training to ensure effective training and determine if the localization of software is appropriate.

How is a Needs Assessment undertaken?

Once it has been determined that a needs assessment should be undertaken, a plan should be developed to answer the following:

- *Who will conduct the study?* The study could be undertaken by consultants, volunteers or staff. But the actual decision as to who shall actually do this exercise should take into consideration available resources, timelines, research design, etc. One of the options that could help address these concerns is to study its pros and cons and do some cost-benefit analysis.

  Those conducting the needs analysis should involve: 1) those who know about the issues relating to the target population; 2) service providers or practitioners; 3) people with research expertise in the area; 4) those who care about those issues; 5) representatives from the target population (from family or interest groups, or from the wider community); and, 6) those who can make changes happen: managers of appropriate partner organizations/ agencies, service planners and commissioners. (Hooper and Longworth, http://www.scotland.gov.uk/Publications/2004/01/18783/32014)

- *What kind of information needs to be collected?* To better understand our target groups, there might be the need to use both primary and secondary data that include social patterns, demographic data, and the like: What data do we have about these groups? What information is needed to have better profiles of these groups? For example, would the religious need online Bible or meditation sources? Would government officials need laws and statutes of other states/countries? Would faculty and students need access to other libraries? Do communities need e-commerce facilities so they can transact and trade?

- *How shall this information collection come about?* Information could be collected through interviews with key informants, conduct of focus group discussions (FGDs), research on secondary data such as public records, observations, surveys and questionnaires. Lastly, it is important to decide how said information shall be used. (http://www.lib.az.us)

Another critical question to be asked is, "*What gaps do you want addressed*?" It has been suggested that the "gap between the current situation and the desired situation determines the needs, purposes and objectives of training." (http://www.cit.cornell.edu/training/resources/assess.html). Furthermore, "(p)erforming such a gap analysis allows the identification of deficits," and may also help when planning for impending change. Only when this has been answered would one be able to progress to identifying objectives of the study, etc.

A more detailed approach to the Needs Assessment process has been discussed in a paper entitled, "Population Needs Assessment." The first step is selecting the method for collecting information. This is followed by developing the data collection tools and select sample, sample size and the sampling procedure. The group tasked to take the assessment, shall likewise develop a schedule for the study. After which, an analysis and/or summary of results have to be done. To wrap the process up, a

presentation of information/results is needed to validate these with the target groups/representatives. (http://decisionaid.ohri.ca/docs/implement/Population_Needs.pdf).

A way of ensuring that reliable information is derived from the exercise is through triangulation using the Needs Assessment Matrix below. Here, interviews are deemed to be the easiest way of obtaining information from target groups but since interviews have limitations as well, triangulation is suggested.

Needs Assessment Matrix

TYPE OF INFORMATION	SOURCES OF INFORMATION		
	OBSERVATIONS	INTERVIEW	DOCUMENTATION
AUDIENCE	Observe in work environment.	Interview audience or supervisors.	Review employee files or personnel records.
TASKS	Observe audience or expert performing.	Interview expert or other performers.	Review job descriptions, policy statements, and trouble reports.
CONTENT	Observe expert or creators of product/process.	Interview SMEs, policymakers, marketers, or managers.	Review product plans, specifications, and marketing guidelines.

From http://www.ceismc.gatech.edu/MM_Tools/analysis.html

In the specific case of Training Needs Analysis (TNA), the exercise must begin with an evaluation of the ICT needs of the target group, as well as their existing knowledge and skills. In the case where the target group is part of an organization, the TNA has to be situated within the context of the organizational goals and directions and the actual job/functions of the concerned individual.

In some cases, a self-assessment could be done. A computer skills self-survey could help measure the extent of skills an individual possesses --- from the simplest task of turning on a personal computer to saving files to sending emails, etc. Questionnaires could likewise determine the learning objectives of the participants as they embark on the training with expectations to interact and learn from with others. From the needs identified by the participants to the actual skills that they have, gaps could be recognized and addressed.

Establishing the goals (e.g. the gaps to be addressed, ICT skills that communities need, etc), setting timelines and providing follow-up trainings would have to be an integral part of the training module. Measurable indicators of training success (e.g. participants' pre-actual-and post training skills) would have to be operationalized. Likewise, the method of training (e.g. schedule, language --- whether it would be done in English than translated in the local language or generally done in the vernacular, etc.) have to be established as well.

Materials on Training Needs Assessment (TNA) and related documents that are available in the PAN L10n Wiki-Category Training Section substantiate the points discussed here. (http://panl10n.net/wiki/CategoryTraining)

Information Dissemination

At the onset of technological advancements, information exchange has been dynamic, its impact more pronounced as knowledge becomes an indicator of power at this age.

What is information? Who is it for?

Information allows people to make sound decisions, to adapt to their environ, to act and be part of a global community. Despite the impact of information to peoples and communities, the more daunting task of disseminating information is to identify the means that its reception is maximized. Therefore, information dissemination should be purposeful and targeted. This could only be achieved if you know your audience. It is not necessarily critical that one uses the latest technological advancement but rather in determining the most effective method of information delivery to a specified, targeted clientele.

What is effective information dissemination?

To disseminate information is to raise awareness and/or impart knowledge. King, Hawe and Wise emphasize that dissemination involves "identifying and engaging with specific groups who would be involved in implementation, understanding their work practices and characteristics, and then working through specific strategies to change their awareness, knowledge and practices". But for information dissemination to be effective, there are certain issues that need to be addressed.

How should information be disseminated? Whose language should it be? What media or channels should be used? What other strategies could be employed to effectively disseminate information?

In "The Effectiveness of Different Mechanisms for Spreading Best Practice", one of the strategies identified to bring about effective dissemination of information and best practices is to engage people (e.g. peer group or superiors) whom participants trust. These participants should be able to trust and value their source of data, training/s and information.   (http://archive.cabinetoffice.gov.uk/servicefirst/2000/guidance/ bpresearch.htm#bp9)

Likewise, it is important to gain the participants' commitment and interest by engaging them from the start of the training process ---- clearly explaining the objectives, the method/procedure to be used, the presence of a feedback mechanism and a follow-through.

More importantly, the same paper posits that people are more inclined "to adopt or develop best practice if they can identify for themselves what will work best in their own circumstances, based on guidance or models." This could be addressed during the conduct of training through discussions on how specific features/applications could be used. (In this latter point, it would also be helpful if participants in training courses/classes come from the same or related background.)

The participants should also have the opportunity to interact with peers or those of similar background that have experienced the benefits of a similar training, etc. Actual sharing from these resource groups would give them a better sense and appreciation of the gains they would get from the training. They would also be able to openly ask questions or share reservations (if any) about the training process or the objectives set to be achieved. These so-called "Local Champions" would allow the participants to be motivated towards reaping the benefits of the Project within their locale's or community's contexts.

The idea of local champions is supported by Duggan et al's premise on "opinion leaders" or motivators. They identified the importance of opinion leaders in ensuring effective information dissemination as these leaders do not simply inform but persuade and almost always "model appropriate behavior." But to be truly effective and have an impact in influencing information recipients, these leaders have to have "similar attributes" with them.

The participants also need to be asked as to their preference on information receipt. Teachers may prefer interactive learning, videos and the like while public officials and community officers could favor any opportunity to network. This would then have to be covered during the training needs assessment exercise.

However, regardless of the media or means of information dissemination, it is critical to identify the appropriate language to be used during the actual training. Research has clearly shown the importance of the mother tongue in learning: *Since language is the main way of communicating meaning in most learning activities, without a sufficient understanding of the instructional language, learning is inferior to that of learners who are fully proficient in the language.* (Kosonen, "The Role of Language in Learning" p87).

Trainers' should not only know the technology they are teaching but also the local language. In a study of Facilitator Training in Nepal (http://www.reflect-action.org/resources/publications/PLANotes/engplanotes/popkins.htm), it was observed that language has become a barrier to communication. Thus, it was proposed that the use of local language, especially in training, will help "ground concepts in the trainees' realities, making these more meaningful to them as participants (in terms of their own experiences" and fields). Also, visual aids and similar devices could facilitate ease of training and introduction of concepts.

In a report on the Training on Transformation (for Trainers) held in East Timor in 2004, it was recognized that language barrier was an obstacle between training facilitators and participants. As the training was conducted in English (and information

was imparted in that medium), there were English terms that had no direct translation in the local language. Thus, it was necessary for a translator to explain concepts and terminologies. To facilitate ease of information dissemination, learning teams were created, with individuals who have a good grasp in both English and the vernacular.

If the trainer is a non-native speaker of the local language used by the participants, knowledge of greetings and functional vocabulary in the local language would be very helpful (similar to the experiences of Peace Corps volunteers - in http://www.peacecorps.gov/ multimedia/pdf/library/T0126_llekmanual.pdf).

Further, an understanding of the cultural realities of the target groups is important if the trainers expect participants' cooperation and involvement. This observation was also stressed in a similar assessment (Framework for Global Food Safety Risk conducted by the International Life Sciences Institute) relative to designing/planning a training program. It underscored that training will be most effective if done by local experts in the local language, also taking into consideration cultural sensitivities. In the case of the Project, it may be rational to consider practices, mores and the like observed in the target groups concerned. Would cloistered monks prefer male trainers? Would community officials prefer volunteers or those from the public sector? Would students and faculty respond more positively with trainers from the academe?

What then becomes the benchmark for effective information dissemination?

Duggan and Banwell posited that the user of information is not in a position to determine the effectiveness of information dissemination. It can only be determined in relation to the criteria set by the information provider. In the context of the Project, the ICT Competency Standard could help determine the effectiveness of information dissemination.

As previously discussed, "ICT competency standards are the knowledge and skills an individual must possess at a recognized level of competence in specific ICT fields/areas." As the competency standard is related to job roles, teachers would have different uses for ICT from farmers or housewives or entrepreneurs. ICT competency standards are context-dependent. It is linked to the performance of a well-defined task related to job roles. Thus trainees should be tested using performance indicators (e.g. opening/saving/closing a file, opening/saving/working on a spreadsheet, checking/writing emails, etc.) organically linked to the ICT competency standard.

In the long-term, a measure of effectiveness can be viewed in terms of changes in attitude/behavior, increase in knowledge and actual sharing/knowledge transfer. In the case of the Project, the significance of ICTs in the different aspects of life (e.g. work, interpersonal relations, etc.) of the target beneficiaries cannot be underestimated. In fact, the Project goals go beyond mere use of ICT but extend to creating ICTs. Thus, long-term benefits such as troubleshooting, creating own programs (albeit simple) and local content could be considered indicators or benchmarks of success.

An effective information dissemination could also be measured by how target groups respond to new information that they receive. In fact, related issues have been identified by Duggan et al on determining effectiveness. According to them, it is important that recipients are: (a) in need of new knowledge; and, (b) aware of knowledge sources so they proactively seek it. Likewise, information providers should target the specific messages/information that they wish to impart to the groups. It is, therefore, prudent to localize content and training so the intended messages are transmitted and imparted successfully to intended target groups. The roles of language and culture, therefore, come into play (as previously discussed).

A more detailed list of related elements and issues on the dissemination process is provided below.

Elements Of Dissemination	Issues In Effective Dissemination
SOURCE	• Perceived competence • Credibility of experience • Credibility of motive • Sensitivity to user concerns • Relationship to other sources trusted by users • Orientation toward dissemination and knowledge use
CONTENT	• Credibility of research and development methodology • Credibility of outcomes • Comprehensiveness of outcomes • Utility and relevance for users • Capacity to be described in terms understandable to users • Cost effectiveness • Research design and procedures • Relationship between outcomes and existing knowledge or products • Competing knowledge or products
MEDIUM	• Physical capacity to reach intended users • Timelines of access • Accessibility and ease of use, user friendliness • Flexibility • Reliability • Credibility • Cost effectiveness • Clarity and attractiveness of the information "package"
USER	• Perceived relevance to own needs • User's readiness to change • Information sources trusted • Format and level of information needed • Level of contextual information needed • Dissemination media preferred • Capacity to use information or product (resources, skills, and support)

From http://www.researchutilization.org/matrix/resources/review/

Content Availability and Accessibility

As discussed in the previous sections, there needs a clear, defined framework that would answer the questions – what (kind of) content should be made available? From whom/what sources? For whom?   The Project objectives (both in the short- and long-term) shall serve as anchors as we seek answers to these questions.

One of the more important issues is to identify which content/what information is relevant to our target groups, which could readily and uniquely provided by the Project. As there are a number of related topics online, what content would optimally serve the purpose of the Project? Would there be a need to immerse the target groups so the content is appropriate to them?   This would readily be addressed through a Needs Assessment exercise.

A critical issue is whether there are enough ICT training materials in languages aside from English. There is limited online literature that could provide evidence that training materials in other languages are available and easily accessible. However, there are literatures that indicate that various initiatives have been undertaken to conduct ICT training in local languages.   These were, usually, undertaken by development/international organizations, NGOs and the like.

e-learning websites, such as the ICT4LT – ICT Training Materials for Language Teachers (http://www.ict4lt.org), provide free available training resources in ICT for teachers. "It consists of a total of 15 modules at three different levels in four different languages (English, Italian, Finnish and Swedish), plus an additional category for new modules. The site has been accessed not only from EU countries but also from over 70 other countries throughout the world."

Results-oriented endeavors such as the research, "Development and Effective Use of ICT-enabled Rural Extension System in Afghanistan," are collaborative undertakings of institutions, whose thrusts are development thru ICT, etc.   Said research recognizes that efforts to transfer knowledge and technology to farmers should be in the local language.   It was a Project collaborated with the existing PAN Localization Project and was started in 2004. Target completion was in June 2007.

Similar projects have been undertaken, with special focus on marginalized sectors. In an article on Public Agenda on the role of ICT in transforming the lives of African Women in Ghana, it was noted that "majority of aged citizens, especially women are semi literates. Their educational background is up to basic level and as such their ability to read and write and understand the local languages is far better and overwhelming than they do in a second language such as English." It noted that ICTs promise to open windows of opportunities are only "meaningful if their content reflect local conditions. Localization of ICT is a way of customizing programs and materials to suit local people and to have impact on the culture of the local communities."

The same article also noted that computer laboratories in South Africa are being rolled out into schools where kids do not have English as a mother tongue. "Also software translation efforts are under way in Dares Salaam for East Africa's 130 million Kiswahili speakers and in Kampala for Ugandan software that could be used by 12 million people."

ICT-based learning materials, such as booklets on best practices in vegetable production, cattle rearing, piggery and poultry keeping, were developed and published in Uganda. They are in easy-to-read formats both in the most commonly used local language (Luganda) and English. According to the ICT Project Annual Report 2001 by Council for Economic Empowerment for Women of Africa (CEEWA)-Uganda Chapter, this program covered the training of trainers (in three sites) on how to use them to disseminate information. Said report also discussed the lessons learned, recognizing that "information should be in local language and easy-to-read formats", including the training in local language. This will ensure that ICT projects are accepted and understood in communities.

A similar project was done by creating interactive CD-ROM on marketing, credit and sales management for rural women in Uganda. Initially, training was given on the basic skills of operating a computer, etc. The CD-ROM format was readily accessible at their own time and pace and allowed "peer teaching." Materials are produced in English then translated in the local language. Rural women beneficiaries acknowledged that this made adoption of ICT easier.

In an ADB-assisted ICT training, the ICT training specialist was responsible for the following: confirm and identify ICT knowledge and skills of target users in pilot communities; conduct assessment exercise and develop simple local language ICT training programs for face to face/CD ROM/online delivery; and, develop and modify training programs as necessary. (These ICT trainings included introduction to computers, email, word processing and internet use.)

Accessibility

Accessibility is the degree to which a website or a program can be "used comfortably by a wide variety of people," including those who require assistive technologies, etc. Ideally, it allows equal opportunity to information and knowledge resources regardless of physical, gender, cultural barriers, among others. Numerous online resources have emphasized the urgency of creating a bias to information provision and accessibility to groups who need such assistance. In fact, a number of mechanisms have been put in place to push this goal forward. One example is the Web Accessibility Initiative (WAI) that "develops strategies, guidelines, and resources to help make the Web accessible to people with disabilities."

Accessibility involves several issues that do not simply pertain to content but to end-users, particularly marginalized groups. These involve: how users, including those with disabilities, access electronic information; how web content designers/developers and information providers "enable web pages to function accordingly, with assistive

devices used by individuals with disabilities"; and how the appropriate content should be developed and accessed.

An important dimension of accessibility is usability. ISO 9241-11 defines it as: *The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use.* (www.usabilitynet.org/tools/r_international.htm)

The QUICK Quiz provides a simple yet useful way on checking information on websites that can be used to judge the usability of websites and/or content in general:

1. Is it clear who has written the information?
2. Are the aims of the site clear?
3. Does the site achieve its aims?
4. Is the site relevant to me?
5. Can the information be checked?
6. When was the site produced?
7. Is the information biased in any way?
8. Does the site tell you about choices open to you?

From (http://www.quick.org.uk/menu.htm)

On the other hand, BECTA – which leads the UK effort to improve learning through ICT -- believes that website usability can be broken down into six main areas:

- *Learnability – Can the user accomplish basic tasks and understand how to use the site after viewing it for the first time?* This is particularly important for websites providing learning resources. Users should not be required to spend significant amounts of time learning how to use the website itself, rather than the content which is the purpose for their visit.

- *Efficiency –* Once users are familiar with the website, *how quickly can they perform tasks and access information?*

- *Memorability –* After not viewing and utilizing the site for a while, *how quickly can the user re-establish proficiency in using the site?* (See the article on Interface design and Human Computer Interaction (HCI) for more about memory and learning programs.)

- *Error handling – How many errors is the user likely to make? How easy is it for them to recover from these errors and how serious are these errors? (Are they likely to discourage users from using your site)?* In a learning program all errors must have a suitable response for the learner to recover and progress.

- *User responsiveness -* A website should be responsive to the individual needs of users. For example, it should be possible for a user to resize text, change fonts and amend the appearance of the site to suit their needs.

- *Engaging* – do users enjoy visiting your site and do they find it easy to interact with? This is a very important factor in motivating learners. (http://industry.becta.org.uk/content_files/industry/resources/Key%20docs/Content_developers/usability_v2.pdf)

BECTA has also developed *quality principles for digital learning resources,* which relate to the design and use of multimedia education materials to support effective learning and teaching. These principles were developed to help educational practitioners and managers to make more informed decisions about digital learning resources and support developers to improve the quality of digital learning resources. (http://partners.becta.org.uk/index.php?section=sa&catcode=_sa_cs_cf_03) These *quality principles* can be used to judge usability of teaching/training materials.

The first set of BECTA's *quality principles* is described as "core pedagogic principles". The core pedagogic principles, which underpin effective learning and teaching, are:

- *Inclusion and access* - Digital learning resources should, in most circumstances, support inclusive practices in their design and in the supporting materials they offer practitioners and learners.

- *Learner engagement* - This entails an experience that is motivating, in that it encourages a culture of learning, is enjoyable and is experienced positively by practitioners and learners alike and has a worthwhile educational aim and is not simply about occupying or entertaining learners.

- *Effective learning* - This promotes effective cognitive and behavioral development or change.

- *Assessment to support learning* - Teaching and learning should incorporate a formative assessment of what has, or has not, been learnt or understood. This includes providing feedback to the learners on their acquisition of knowledge and skills.

- *Robust summative assessment* - This is to provide information on learner performance that can be used for guidance or selection in relation to future education or work opportunities.

- *Innovative approaches* – These include innovation in their design and use of technology and/or the innovation in the approach to teaching and learning (that they offer).

- *Ease of use* - Digital learning resources should be as transparent as possible to the user.

- *Match to the curriculum* - 'Curriculum' refers to any program of learning activity planned by practitioners and/or learners.

The second set of *quality principles* includes "core design principles" or aspects of the design and interoperability of digital learning resources. The core design principles include:

- *Digital learning resource design* - This should exploit the opportunities provided by ICT to enhance learning and teaching.

- *Robustness and support* - Digital learning resources should support the user appropriately.

- *Human-computer interaction* - Digital learning resources should facilitate sound human-computer interaction.

- *Quality of assets* - Digital learning resources should ensure that assets are suitable for the context of use.

- *Accessibility* – This should ensure that no user, practitioner or learner is unreasonably prevented from benefiting from a resource simply because of their access requirements or preferences.

- *Interoperability* – This has many potential educational benefits for learners and these apply across many aspects of education, for example the use of learning platforms and e-portfolios, and the transfer of learner data across institutions.

- *Testing and verification* - A well-planned development process, with effective reviewing and feedback procedures, ensures that digital learning resources are: (i) suitable for the target audiences; (ii) culturally appropriate and factually accurate; (iii) suitably challenging; (iv) robust; and, (v) match the target environments.

- *Effective communication* – This is reliant on how the core pedagogic and design principles are addressed. Nonetheless, it is important to ensure that key information, user guidance and known benefits or issues are communicated clearly to practitioners and learners.

In the specific case of *content*, BECTA has established and is maintaining and applying a *content quality framework* to encourage all aspects of content development and provision. BECTA contends that content should be

- well-designed, appropriate and accurate;

- compelling and truly interactive;

- inclusive and accessible;

- innovative while valuing the successful;

- appropriately interoperable and would enable reuse;

- provide appropriate feedback on use; and,

- add value and raise standards of achievement.
  (http://www.becta.org.uk/etseminars/presentations/2005-0126/1/slides/slides.pdf)

Relative to the Project, the challenge is to determine the most appropriate tools that will ease access (to content, to training, etc.) of particular target groups. In the technical side, the challenge is to "remove the obstacles that prevent accessibility tools from functioning effectively." In the content development area, the content should fit the needs of the target groups. These training materials (in the local languages) should conform to international best practice (like BECTA) or international standards (like ISO 9241-11) in educational content development. In the training side, it is essential that information is readily accessible and provided in the language widely used and understood by the target groups.

Why ensure accessibility?

As discussed, information is power. Accessibility is important because it provides information to people in all aspects of their lives --- work, play, and community life. It provides opportunities to job, recreation and social interactions. It is, therefore, imperative that accessibility is provided to all, and even create a bias to the marginalized, as needed, through the provision of assistive facilities. Such biases could be in the technical side (e.g. Web visuals/graphics), training and content development (catering specifically to the needs of the group.) As Ludie pointed out, accessibility stresses inclusion (of diverse groups) so resources are enjoyed by a greater number.

In conclusion, the most vital ingredient of ensuring that the Project's objectives are met is to involve target groups from beginning to end ---in determining their needs, in assessing their awareness (and actual usage) of ICTs and in designing their training and in developing content. Equally important is putting in place a feedback mechanism as target groups become involved in the process. This will address gaps and provide subsequent trainings that will ensure Project success and achievement of goals.

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