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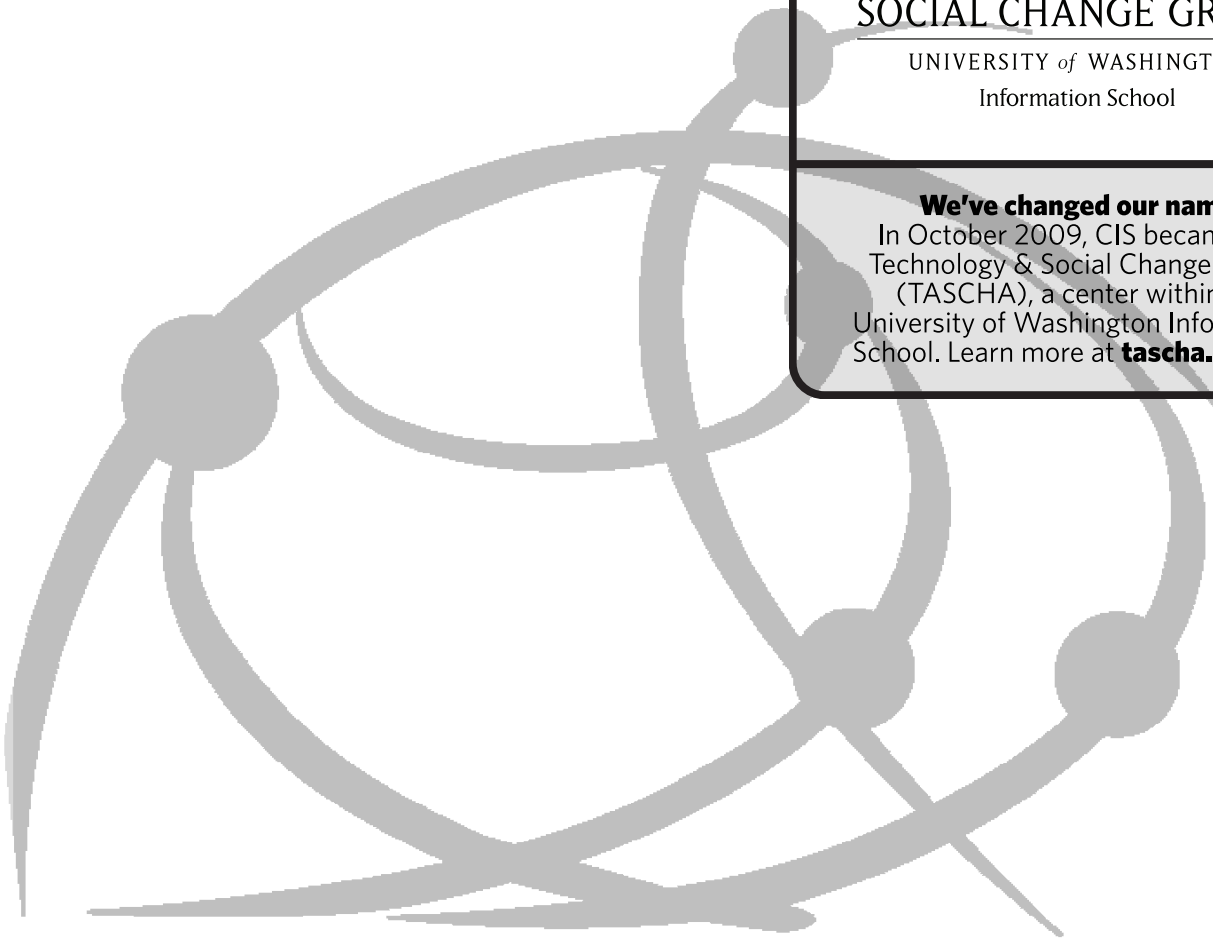

ICT Training for Disadvantaged Populations:

The importance of tailoring to the local context

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Center for Internet Studies Working Paper Series

This report is part of a series of papers under development at the Center for Internet Studies. The aim of this working papers series is the timely dissemination of preliminary research results. The views expressed in these papers are those of the authors. We welcome feedback and encourage readers to provide comments and critiques to the authors.

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EXECUTIVE SUMMARY

This study describes efforts of NGOs around the world to bring the benefits of new technologies to disadvantaged communities through ICT training programs. The central question is: given the diversity of socio-economic conditions and population groups, how do NGOs develop ICT training programs to meet these diverse needs?

The research, based on interviews with 25 NGOs and field visits to 30 community centers in Mexico and Vietnam, found three dominant approaches to ICT training:

1. **Project-based** – training that is embedded within a locally relevant purpose and in the context of social issues.
2. **Industry-specific** – training in which ICT skills are tailored for specific sectors of the economy (tourism, legal services, health, etc.).
3. **Skills-based** – stand-alone training on ICT applications without integrating any social purpose into the training.

The characteristics of the NGOs and the processes they go through to develop an ICT training program differ according to these approaches.

The training programs of project-based NGOs are: learner-centered; embedded in the social mission of the organization; and designed to engage ICT learners along issues that are relevant to the community.

Industry-specific NGOs have employability or income generation as the main goal, and often emphasize training in "soft skills" and access to a network of employers in addition to ICT skills training.

Skills-based NGOs emphasize mastery of applications; are especially relevant in urban areas and industrial zones where there is high demand for workers with ICT skills; and place a particularly high value on certification.

When **adapting ICT training materials for their own programs**, skills-based NGOs use the training materials as a starting point and make mostly minor modifications to make it locally relevant. The end product looks similar to the original ICT training material. A project-based NGO starts with the philosophy that guides all of its community development programs, and appropriates and integrates relevant pieces from ICT training materials into its own programs. The end product may bear little resemblance to the ICT training materials. Industry-specific NGOs fall in between the other two approaches. Depending on the ICT needs of the sector, the NGO typically finds that it must appropriate lessons from a variety of ICT training materials and even develop modules from scratch. In all cases, NGOs value ICT training materials that are highly modular, facilitating modification to local conditions as necessary.

Most NGOs involve **instructors** in both the program design and continuous improvement process because they are the frontline of service delivery and know student needs best. Most gather instructor feedback, facilitate the sharing of best practices, and incorporate their ideas into the teaching. Instructors in project-based NGOs play a larger role in the design process than those in skills-based or industry-specific NGOs because they are typically afforded greater autonomy over course content.

Instructor preparation is critical to every NGO for training instructors in the pedagogy of the organization, familiarizing them with the training materials, and providing a foundation for information sharing among instructors. Project-based NGOs place particular emphasis on the pedagogical component because it is imperative for the instructors to understand the social mission that guides the NGO's programs, including ICT training.

Many NGOs involve **outside stakeholders** to ensure their training programs are relevant to local needs. NGOs with a strong employability objective, for example, often work with local employers, policy makers and NGOs that offer complementary (non-ICT) training services.

The many steps required to tailor ICT training programs are extremely **time and resource intensive**. The extent of the effort needed to accomplish this is probably underestimated by most donors and other organizations that support NGOs in ICT training. Providing access to freely available ICT training materials is an important first step, but the ensuing process of adapting materials and embedding them in a locally relevant training program still requires significant effort.

All three approaches have **strengths and weaknesses.** The project-based approach is particularly suited for engaging learners in issues and activities that are participatory and meaningful to their lives. It may be less easy, however, to discern the ICT skills one acquires, for example, a potential drawback for employers. The very focused industry-specific approach is by far the strongest for achieving employability goals, and student and instructor motivation is high for this reason. However, these programs are very difficult to construct, and instruction may be problematic when it relies on so many different experts to teach different components of the training. The skills-based approach tends to offer a more comprehensive range of skills that are easier to standardize and certify, which governments often prefer. Skill retention and student motivation, however, may be lower, especially in low-ICT penetration areas or where there is a lack of opportunity to utilize new ICT knowledge within a relatively short time period. In all cases, NGOs can take steps to accentuate the strengths and ameliorate the weaknesses of the chosen approach.

1. Introduction

Training in information and communication technology (ICT) skills is one of the most popular services offered by telecenters and other community-based NGOs around the world. Signboards advertising classes in computer fundamentals, word processing or Internet searching attract new users with the promise that people – particularly the disadvantaged populations these organizations serve – will be able to use these new skills to gain new employment, conduct e-government transactions, communicate with family and friends, and help children with their homework.

NGOs that offer ICT training have different aspirations for how these skills will benefit their target communities. For some, it may be to provide people with a set of skills that will make them employable. For others, it may be to foster social empowerment or self-esteem. The reasons vary widely, as do the socio-economic environments in which ICT trainings take place. The common thread, however, is an understanding that ICT skills are essential for today's increasingly digital world, whether it be for work, education, or everyday life. Furthermore, the demands for ICT skills are felt by people in developing and developed countries alike. In the developing world an extensive literature articulates the imperative of expanding access to ICT, typically for improving opportunities for socio-economic advancement (e.g. better job, health, education, etc.). In the developed world as well, knowledge of ICT is becoming increasingly essential even for performing daily tasks, a sentiment succinctly described by a representative of Ældremobiliseringen, a Danish NGO that works with retired and elderly people:

Seniors & ICT training	"Denmark is a very modern society, and information and communication technologies are a major part of people's lives in this country. All communication should be done over the Internet. Taxes, banking, access to government services, doctor's appointments, are all done over the Internet. Senior and retired citizens need these skills to be able to survive in this society."

Against this backdrop we wondered, how do these NGOs develop ICT training programs to meet the needs of such diverse target populations? As this paper will illustrate, there is a wide range of approaches. Some NGOs focus on different computer applications, the most conventional understanding of ICT training. Other NGOs, however, have adopted a very different approach that involves a process of embedding ICT into the social mission of the organization. Others tailor skill sets to the needs of specific industrial sectors. What is each of these NGOs trying to accomplish through their different approaches? How do they go about designing and delivering their training programs?

Despite the importance of ICT training there has been very little systematic documentation of the ways in which NGOs tailor their training programs to the needs of diverse community learners. This is the primary contribution of this study. The specific research questions are:

1. What are the different training approaches of NGOs for delivering ICT training?
2. What are the practical steps NGOs take when developing training programs, and how do these differ by approach?
3. How do NGOs appropriate and adapt training materials to fit the needs of their community learners?

The report is organized as follows. After covering the methodology we describe the characteristics of the training approaches that emerged from the research. This forms the basis for documenting the practices of NGOs when developing and delivering their training programs. This section also examines the characteristics of ICT training materials that NGOs find most valuable. The report concludes with an assessment of the strengths and weaknesses of the different approaches to ICT training.

Relevance of the Study

This study has been written to provide useful information for the following audiences:

NGOs that either have or plan to offer ICT training programs

The study illustrates the reasons that NGOs tailor training programs for different communities, and offers examples of their best practices when developing their training programs. NGOs can consider which training strategies are appropriate for their contexts and constituents.

Public and private sector donors and support organizations

The study illuminates the importance NGOs place on local relevance and on tailoring ICT training programs for their local communities. It is our hope that organizations that support NGOs take explicit note of how resource-intensive this process is as they fund NGOs to deliver ICT training. Our impression is that most funding for NGOs goes into two areas. One is infrastructure (e.g. hardware, software, connectivity) and human capacity building (e.g. teacher training). The second is training materials such as the UNESCO "open training platform" and private sector companies, including Microsoft, that make curriculum freely available to NGOs and schools. While some of these organizations support NGOs in their efforts to adapt training materials to local needs, more attention and funding should be directed to this process. The NGOs in this sample may represent the exception in that they do receive this support.

Providers of ICT training materials

ICT training materials are becoming available in increasing numbers of local languages. Providers of these materials will benefit from learning how NGOs use, appropriate, adapt and create their own curricula from these resources. As the study will demonstrate, NGOs particularly value materials that are extremely modular and flexible. There is also an opportunity to develop materials focused on the *process* of developing locally-relevant ICT training programs; that is, the how-to's of embedding ICT skills into life tasks in a locally meaningful way that will lead to greater utilization and retention of ICT skills.

2. Methodology

The study documents the experiences of twenty-five NGO representatives and instructors around the world (see Annex 1 for list of organizations). All of the NGOs provide ICT training to disadvantaged populations, in either developed or developing countries.

Data for the study are based on:

- Semi-structured phone interviews with 25 NGO representatives (see Annex 3 for interview protocol)
- Field research in Mexico and Vietnam involving semi-structured and open-ended interviews with instructors and students in 30 community centers
- Documentary analysis of training materials, teaching guides, student assessment tools and other materials provided by the sample NGOs
- Review of relevant scholarly and field research from a variety of fields.

SAMPLE

The 25 NGOs interviewed by phone were selected from the portfolio of 2006 grantees of Microsoft's Unlimited Potential (UP) program. This program, part of the company's corporate citizenship initiative, provides cash, software, and training materials (UP Curriculum) to NGOs around the world focused on skills training for social inclusion. Microsoft's granting philosophy is to primarily fund organizations that have longstanding roots in their communities, most of which have a social mission that predates their involvement with ICT. They tend to fund fewer organizations that are newer and have a "technology first" mission. Thus, while the NGOs in our sample are not fully representative of the universe of NGOs that offer ICT training programs, they are generally at the forefront of efforts to bring the benefits of ICTs to disadvantaged populations.

Within this pool, NGOs were selected based on the following criteria:

a. Regional diversity (Asia, Western Europe, Eastern Europe, Latin America, and North America)
b. Socio-economic diversity (developed and developing countries)
c. Diversity of NGO mission (some are foremost community development organizations; others, ICT training and access organizations)
d. Diversity of target group (youth, women, disabled, seniors, and indigenous populations)
e. Diversity in length of experience offering ICT training (from over a decade of experience to new programs)
f. Availability of UP curriculum (see explanation below)

THE UNLIMITED POTENTIAL CURRICULUM

The Unlimited Potential (UP) Community Learning Curriculum was developed by Microsoft Learning in 2003 to support basic and intermediate ICT training in community centers. It is available in twenty-two languages and can be freely downloaded from its website.[1] The curriculum contains eight modules (See Annex 2 for the description of the modules) that can be adapted by the NGO at will. In addition, the curriculum offers a set of notes for instructors and students and some learning assessment tools.

[1] http://www.microsoft.com/about/corporatecitizenship/citizenship/giving/programs/up/curriculum.mspx

For the purposes of this study, the UP curriculum provides two advantages. First, it was made available to all NGOs to use or not, and to adapt freely based on their assessment of their own needs. Second, the curriculum is *highly* modular. It can be used "out of the box" in a sequential manner, or an NGO can "cut and paste" modules or individual lessons and incorporate these into its own curriculum.

The fact that all of the NGOs in our sample had at least one set of ICT training materials in common, independently of whether they used it as a core material for their ICT training or not, provided consistency to the research.

LIMITATIONS OF THE STUDY

Our sample is as varied as was possible within the settings available to us, but is too small to represent the full range of ICT training settings. The data are based on our observations and interviews, and often must rely on the training approaches as described by the respondents rather than on any systematic data on the outcomes of these trainings. As such we make no claims about the efficacy of one approach over the other or the broader socio-economic impacts of ICT training. While we comment on the training materials utilized in these centers, we did not conduct an assessment of the quality of training materials per se, nor did we ask respondents to compare the strengths and weaknesses of these materials.

3. Categories of approaches to ICT training

Based on our analysis of the phone interviews and the training materials and other documents provided by the NGOs, we have clustered the training approaches into three broad categories – project-based, skills-based and industry-specific. The characteristics of the NGOs, the processes they follow to create ICT training programs and other practices differ according to these categories.

1. **Project-based ICT training**: training that is embedded within a locally relevant purpose and in the context of social issues.
2. **Industry-specific ICT training**: training in which ICT skills are tailored for specific sectors of the economy (tourism, legal services, health, etc.). Similar to project-based training, industry-specific ICT training also integrates other types of skills that are relevant for a specific sector (for example, customer service skills for the tourism industry).
3. **Skills-based ICT training**: stand-alone training on ICT applications without integrating any social purpose into the training.

The overwhelming majority of the organizations interviewed by phone (18 NGOs) employ a project-based approach, followed by industry-specific (4 NGOs) and skills-based (3 NGOs). Two NGOs are classified as both project-based and industry-specific. As mentioned earlier, given our sample of mostly well established NGOs with social missions that predate their involvement with ICT, we do not claim that this ratio of training approaches is universally applicable.

This section describes NGO programs representing these three approaches, noting the salient characteristics of each. Most of our data is from project-based NGOs, but this paper also draws attention to the industry-specific strategy, an intriguing approach worthy of being highlighted, and provides examples from the skills-based approach as well.

These categories are a useful heuristic for illustrating differences in emphases among NGOs in developing and adapting training programs for their community learners. In practice, however, training programs do not exhibit the exclusive characteristics of only one approach. That is, while we coded each NGO based on its dominant characteristic, many of them have training programs that integrate components of the other approaches.

3.1 PROJECT-BASED APPROACH TO ICT TRAINING

Definition: Training in ICT that is embedded within a locally relevant purpose and in the context of social issues. Within this approach, learning happens primarily in non-formal and informal training settings. We follow the World Bank in defining non-formal training as "structured programs that are not formally recognized by the national educational system," and informal training as "unstructured learning, which can take place almost anywhere, including the home, the community, or workplace and peer-to-peer" (World Bank, 2003).

Main characteristics: The most important characteristics of the project-based approach to ICT training are: (1) Learner-centered instruction; (2) Congruence with the social mission of the organization; and (3) Engagement with ICT learners along issues that are relevant to the community.

1. Learner-centered instruction

Project-based ICT training programs are based on the fundamental principle that learners are at the center of the learning process and actively engaged in shaping it, contributing new knowledge, and using the skills learned to reflect on their own reality and how to improve it. Instead of focusing on learning a software application - for example, word processing - students learn how to use ICT tools as mechanisms to engage with their community and address social needs.

Another term to refer to project-based learning is experiential education – or learning by doing – and it is defined as:

Project-based ICT training: **Learning by doing**	"…the process of actively engaging students in an authentic experience that will have benefits and consequences. Students make discoveries and experiment with knowledge themselves instead of hearing or reading about the experiences of others. Students also reflect on their experiences, thus developing new skills, new attitudes, and new theories or ways of thinking." (Kraft & Sakofs, 1985)

Corporación Vallenpaz in Colombia offers a good example. Its objectives are community development, conflict resolution, civic participation and teamwork, all reflective of the local context where the NGO aims to mitigate the risks of youth joining paramilitary groups due to lack of economic opportunities in Colombia's conflict zones. The NGO provides skills to certify youth as "Associated Rural Entrepreneurs" (*Empresarios Rurales Asociados* in Spanish). To accomplish this they developed a program where the youth proceed down a structured path to develop a micro-business plan, with steps that include: market research, budgeting, and proposal writing (see Figure 1).

The organization developed a curriculum that covers each of the steps, conceiving lessons and exercises that would engage the learner and provide her with the skills and knowledge necessary to fulfill the ultimate objective. As part of the process of creating this program Corporación Vallenpaz identified a number of areas where they wanted to integrate ICT skills into the overall agricultural training program. They taught Internet searching for the market research step, spreadsheets for budgeting and so on. But each of these tasks was grounded in a non-ICT framework that was relevant to the learners. For example, market research first involved interviewing people in the community.

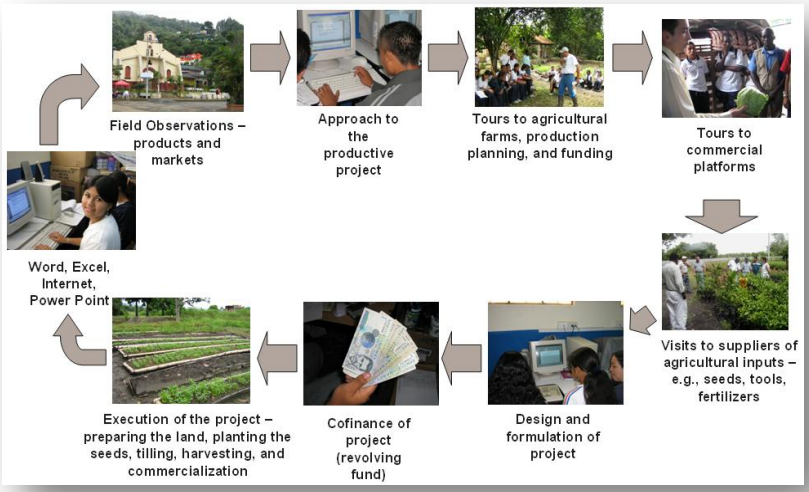
2. Congruence with social mission of organization

Many of the NGOs in this category have been in existence for years or decades, offering programs that predate their involvement with ICT. Typically, they have some sort of social or economic development mission and guiding philosophy that runs through all of their programs. ICT training is no exception. With deep roots in the communities they serve, these NGOs carefully examine ICT training with an eye to how it can serve their broader social agenda.

The Smith Family, an NGO founded in 1922 in Australia, works with disadvantaged children and their families promoting "education as a means of increasing participation through lifelong learning" (The Smith Family, mission statement). Learning for social inclusion is paramount, as encapsulated in this statement:

ICT training embedded into the social goals of the NGO	"The main goal of our program is to engage people in learning who haven't had the opportunity to do so and we use ICT to foster these principles. We use [ICT] technology to engage people in our centers, addressing issues of social inclusion, a big problem in Australia. The outcome is that they can learn to use computers in an embedded way. It is a means to an end. For many people that come to our centers it is the first time to engage in issues that are relevant to their communities." (The Smith Family representative, personal communication, 2007)

Figure 1: Integration of ICT into agricultural micro-enterprise training



Source: Corporación Vallenpaz

3. Engagement along issues relevant to community

Project-based ICT training programs are driven by socio-educational training approaches. Within this objective, a pedagogy that is community-centric plays a key role. Warschauer (2003) refers to this as *"critical pedagogy*" and it is based on the concept of helping learners help themselves by "defining their own problems based on social needs and issues facing their families, communities, and others, and on confronting these problems through collective inquiry, critique, and action as part of the educational process."

Critical pedagogy is based on Brazilian Paulo Freire's influential *Pedagogy of the Oppressed* that appeared in 1970 and contributed to participatory approaches to development. Applied to ICT training, *critical pedagogy* empowers learners to use ICT while discussing social issues that are particularly relevant to their community: human rights, civic participation, community development, environmental protection, sexual education, etc.

Most of the NGOs we interviewed develop their own pedagogical materials as building blocks not only for engaging learners but for training instructors as well. These materials reflect the culture and social mission of the organizations and influence their entire range of services and training programs, not just ICT. The experiences of two organizations illustrate the importance of critical pedagogy in their ICT training.

The **Committee to Democratize Information Technology (CDI) Mexico** works with communities, primarily youth, in rural, semi-urban and urban areas using ICT as a tool to address such issues as civic participation, democratic practices, and community development through Schools for Informatics and Citizenship (*Escuelas de Informática y Ciudadania* or *EICs*). The core of CDI's training programs and activities is a pedagogical handbook called Proposal for Participatory Politics (PPP, *Propuesta de Política Participativa*),the most important component of the instructors' training. The PPP handbook includes a series of exercises and group activities that allow learners to discuss social issues and to collaborate to overcome challenges in their communities.

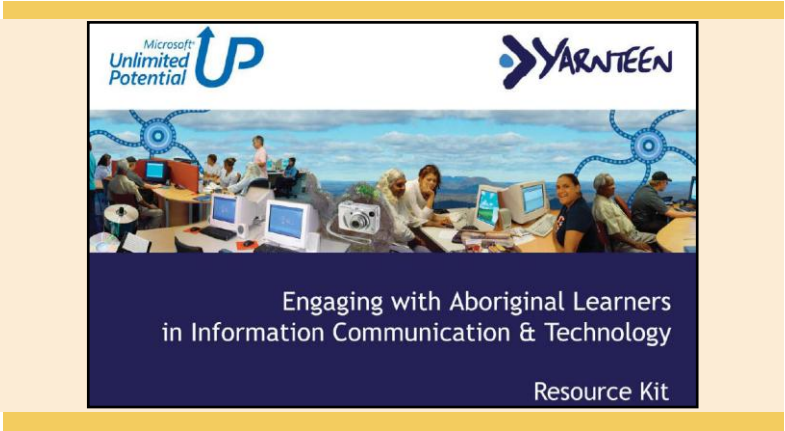
ICT skills are embedded into these exercises. For example, in the EIC *Colonia Cuauhtemoc* in Oaxaca, one of the poorest states in Mexico, students learn how to use spreadsheets to improve the administration of the shoe and bakery cooperatives that are the main sources of income for the community. In the EIC Alvaro Obregón, located in a marginalized area in the outskirts of Mexico City, students prepare

PowerPoint presentations describing local environmental problems and actions needed to raise awareness within the community itself and with the local authorities.

Another interesting example is the resource kit developed by **Yarnteen Aboriginal & Torres Strait Islanders**, an Australian NGO focused on community development, entrepreneurship, empowerment and cultural preservation and awareness. Yarnteen's resource kit "Engaging with Aboriginal Learners in Information Communication & Technology" (see Figure 2) provides instructors with different strategies for optimizing ICT training when engaging with aboriginal communities. As related in an interview:

Engaging students with issues relevant to their community	"The premise of the training is that it must be culturally sensitive and show the appreciation of the experiences of aboriginal people. For example, story telling is one of the most important practices for sharing knowledge and history of the communities. We use digital story telling, with multimedia, to engage students with ICT while at the same time preserving an important cultural practice." (Yarnteen representative, personal communication, 2007)

Figure 2: Yarnteen Resource Kit: "Engaging with Aboriginal Learners in ICT"



Source: Yarnteen Aboriginal & Torres Strait Islanders

3.2 INDUSTRY-SPECIFIC APPROACH TO ICT TRAINING

Definition: Training in which ICT skills are tailored to the needs of specific sectors of the economy (e.g. tourism, small and medium enterprise (SME), agriculture, health).

Main Characteristics: 1) Employability or income generation is among the main goals; and 2) Training in "soft skills" and access to a network of employers are in addition to ICT skills training.

1. Employability or income generation as the main goals

NGOs in this category have a much stronger employability or income generation mission. The underlying premise is that generic ICT skills are insufficient, and that people will have a much stronger chance of becoming employed if they receive training in the skills particularly relevant to that sector, including ICT skills. This may involve training on specific software (e.g. patient management systems in the health sector) or training in specific uses of common software (e.g. using email for customer service in the apparel sector).

Infoshare, an NGO in Sri Lanka, exemplifies the industry-specific approach. Infoshare supports the NGO community through technical capacity building, application development, provision of web media services, development of training materials and conducting train-the-trainers programs. Infoshare has collaborated with the Vocational Training Authority of Sri Lanka, a government agency, and the private sector, to create a suite of ICT training materials tailored to the needs of four industry sectors: tourism, apparel, media, and agriculture (see Figure 3 for an excerpt of the apparel industry curriculum).

The process of curriculum development has included the following. An initial environmental scan identified sectors that would benefit from this sort of program.

Figure 3: Excerpt from curriculum outline for apparel industry

4.2. Design & Development
- 4.2.1. Overview (general discussion)
- 4.2.2. Create an idea or concept
- 4.2.3. Product Design
  - 4.2.3.1. Preparing sketches
  - 4.2.3.2. Develop story boards
- 4.2.4. Sample development
- 4.2.5. Illustration
  - 4.2.5.1. Story boards
  - 4.2.5.2. Fashion modeling,
  - 4.2.5.3. Video conference
  - 4.2.5.4. Physical sample display and exhibitions
  - 4.2.5.5. Catalogs, directories, news papers
- 4.2.6. Application of ICT to fulfill requirements of the design and development phase
  - 4.2.6.1. Application for prototyping product (Virtual-Stitcher, Style zone)
  - 4.2.6.2. Electronic mail (MS Outlook)
  - 4.2.6.3. Page Makers (Adobe page maker, illustrator, MS Front page)
  - 4.2.6.4. Photo and picture editing software (MS Paint, Adobe PhotoShop)
  - 4.2.6.5. World wide web (MS Internet Explorer)
  - 4.2.6.6. Software for market research (Net-MR market research software)
  - 4.2.6.7. Word processing packages (MS Word, Adobe PDF Writer)
  - 4.2.6.8. Presentation packages (MS Power Point)
  - 4.2.6.9. Multimedia application packages (MS Movie Maker, Flash, Director)
  - 4.2.6.10. Application of computer networks and data communication systems
  - 4.2.6.11. Software for up loading and down loading web pages(FTP Client software, MS Internet Explorer)
  - 4.2.6.12. Software for uplinking and downlinking (AccessIT)
  - 4.2.6.13. Software for video conferencing (e/pop, iVisit)
  - 4.2.6.14. Software for creating animations (Maya, Flash, Director)

Source: Infoshare

For example, a study conducted by the Centre for Policy Alternatives in 2005 found that "provincial correspondents have little to no access to training or any other form of capacity building. In Sri Lanka, most media training is provided by the NGO sector, which is sporadic and difficult to access, with more staff reporters gaining access to the training programs than provincial journalists (Center for Policy Alternatives, 2005, as cited in Infoshare, 2007).

Infoshare then organized a series of workshops with representatives from four industries (tourism, journalism and media, apparel, and agriculture) to understand their dynamics, their employment needs, and the ICT skills required of new hires.

Infoshare created draft outlines of the curricula to share with the industries for their feedback. In this case, Infoshare utilized the UP curriculum, adapting relevant skill-sets and exercises from the eight UP modules, and augmented with additional skill-sets where gaps were identified by the industries. This iterative process is now being finalized in the form of four distinct curricula.

2. Training in "soft skills" and access to a network of employers

Many of the organizations in this category provide training in browsing job databases, applying for jobs online, preparing a résumé, practicing for interviews, and other essential skills. These are commonly known as "soft skills" and often provide another form of embedded learning where learners hone their ICT skills while preparing a résumé or searching and applying for jobs online. Many NGOs also develop relationships with employers to provide trainees with access to internships, mentors, on the job training and a ready network for employment opportunities. For those NGOs where employment is the primary goal, the combination of industry-specific skills, ICT skills, soft skills, and employer networks provides a comprehensive training approach that prepares people for employment. Soft skills are particularly important for people with no job experience or people who have been unemployed for a long period of time and need to update these skills to increase their chances of finding a job (Chapple, 2005).

An example of such a comprehensive approach is the **Jewish Vocational Service (JVS)** in San Francisco, an NGO that provides employment-related services to a wide variety of people, including disadvantaged groups. JVS' industry-specific training targets key sources of employment in the Bay Area, among them

the healthcare and legal sectors. JVS also trains students in résumé preparation, practicing for job interviews, and applying for jobs online, in the context of comprehensive career mentoring (see Figure 4 for a list of some of their employment-related services and Figure 5 for industry-specific training).

Figure 4: Employment-related services available at JVS

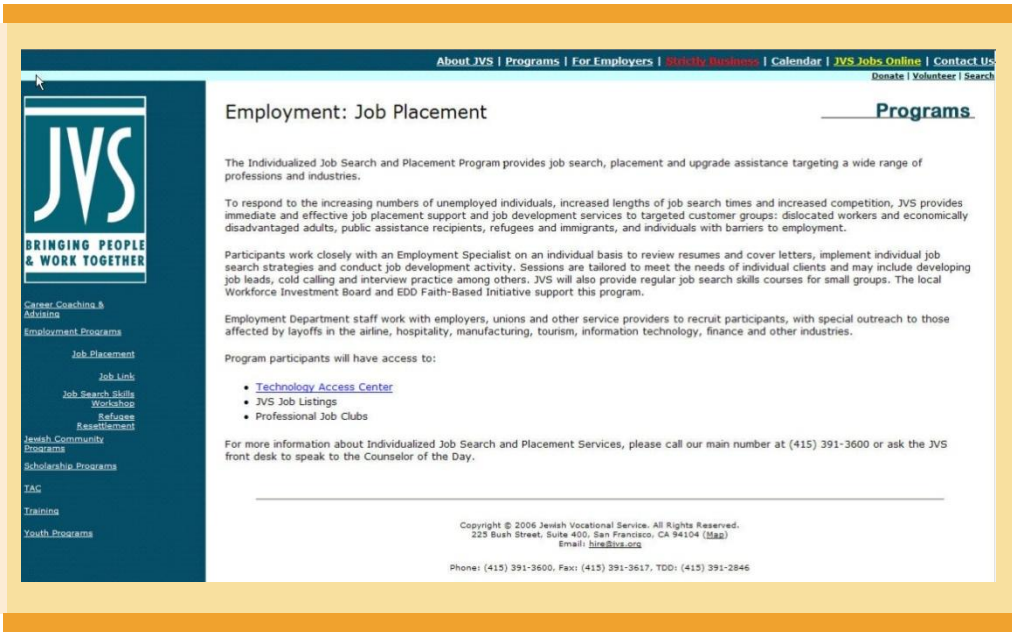
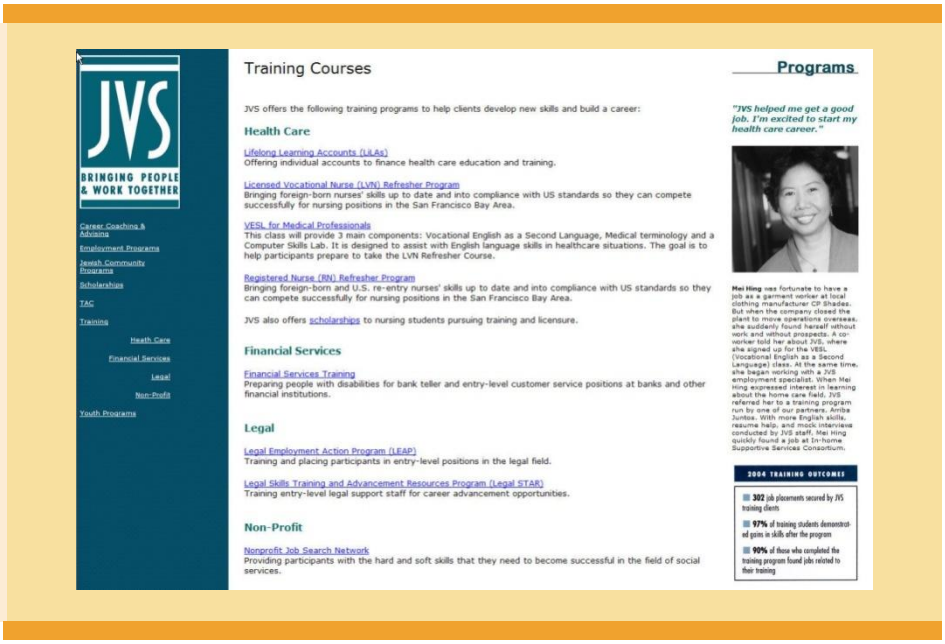


Figure 5: Industry-specific training available at JVS



Source: Jewish Vocational Service website (www.jvs.org)

Industry-specific training has aspects of both project-based and skills-based approaches but is sufficiently distinct to warrant its own category. Furthermore, NGOs and relevant stakeholders (especially

government) are particularly enthusiastic about this approach to training. It is our sense that these types of training programs will expand greatly in the future, and are worthy of careful scrutiny with an eye toward replication.

3.3 SKILLS-BASED APPROACH TO ICT TRAINING

Definition: Stand-alone training on ICT applications without integrating any social purpose into the training.

Main characteristics*:* (1) Emphasis on mastery of skills; (2) Especially relevant in urban areas and industrial zones where there is high multi-sector demand for workers with ICT skills; and (3) Importance of certification in ICT skills.

While our sample of NGOs in this category is relatively small, combined with our previous research and discussions with leaders in this field we surmise that these NGOs are more likely to have a technology-centric mission, be more prevalent in urban areas, may have stronger employability objectives, and/or have strong support from governments to provide ICT training.

1. Mastery of skills

These programs conform to the most common view community technology training. Classes emphasize mastery of skills, typically focusing on common software applications or uses. Courses often have such titles as *Computer Fundamentals*, *Microsoft Office*, *Adobe Photoshop,* or *Internet Searching*. In general these programs appear to cover more topics than project-based programs because they focus solely on the skills, not on socially embedded learning. In terms of tailoring, an NGO may emphasize skills that it believes are most relevant to the community. But otherwise, assuming local language curricula are available, the adaptation process is not as intensive as in the other two categories.

2. Urban and employability focus

Interviews suggested that skills-based programs are particularly relevant where industrial activity has generated a demand for people with basic ICT skills.

Topic 64, a public-private partnership in Hanoi, Vietnam, illustrates the skills-based approach. This project is managed by the **Center for Research and Consulting on Management (CRC),** a government-backed NGO housed in the Hanoi University of Technology. Partners include: the United States Agency for International Development (USAID), Qualcomm, Microsoft, EVN - the Vietnamese state telecommunications and energy supplier, and Hewlett-Packard. The project is establishing UP curriculum-based training in centers in each of the country's 64 provinces. We visited five centers in the peri-urban and rural provinces surrounding Hanoi in the north, and Ho Chi Mihn City in the south. The project leaders found a comprehensive curriculum like Microsoft UP to be the most appropriate fit for the country's needs. It was seen as "high quality" and covered the skills required by the country's fast growing manufacturing sector. The center in Bac Ninh, for instance, is always full because there are now some 100 companies in the area, including such giants as Canon. Instructors mentioned that employers increasingly demand that people come in with a basic understanding of ICT, and that easily identifiable skill-sets (word processing, spreadsheets, etc.) are the most marketable. Students we interviewed were well satisfied with the courses because they were confident they could get a better job with the credentials of having completed an ICT course. The possibility for upward mobility was clearly a primary motivating factor among most of the learners interviewed.

3. Importance of certification of ICT skills

Many of the NGOs in the skills-based category often place a high value on certification. The meaning of "certification" varies widely across programs, from certifying attendance (certificates of completion) to ensuring actually mastery of the skills (certificates of proficiency). Formal recognition is often a crucial

aspect of certification. Certificates may be endorsed by the government or certified by private companies such as Microsoft and Cisco, or entities such as the International Computing Driving License (ICDL).

In Vietnam, for example, the "ABC" certificate is regulated by the government which attaches certain requirements for both instruction (e.g. minimum number of hours per course) and the testing instruments. In other countries, an NGO might issue a certificate with its own logo and/or the logo of the curriculum provider as a form of informal recognition.

Interviewees also suggested that government has a propensity to prefer standardized curricula and certificates that demonstrate competency, both of which again favor the skills-based approach. This is not universally true, however, as government support is also strong for some of the NGOs in the industry-specific category (e.g. Infoshare in Sri Lanka described earlier), and in some instances we found NGOs within the project-based category collaborating with the government on issues relating to certification (e.g. CDI Mexico).

Figure 6: Bah Ninh Center in Vietnam

Source: Photograph taken during field research in Vietnam

4. NGO practices for developing an ICT training program

This section highlights some of the prominent practices NGOs follow when developing an ICT training program.

4.1 THE MULTIPLE MEANINGS OF "ADAPTING" ICT TRAINING MATERIALS

Through our interviews, we found that NGOs approach the adaptation of training materials in very different ways. Figure 7 summarizes the distinctions. A common perception is that NGOs start the process of developing an ICT training program by accessing and reviewing ICT training materials such as what one would find at a bookstore in the computer training section (e.g. computer fundamentals, designing a website, etc). Our analysis suggests while this may be the case with the skills-based approach, it does not reflect the process of the project-based and industry-specific approaches.

NGOs in the skills-based category are those most likely to review the lessons in the ICT training curriculum they've chosen, and to modify the exercises so that they are more meaningful to their users. For example, in Vietnam the NGO adapted the UP curriculum so that the names of people, places, businesses, crops and other things would be familiar to Vietnamese learners. This is their meaning of "adapting." For these NGOs, the end product is practically indistinguishable from the original curriculum. The extreme end of this approach is to simply use a standard ICT curriculum "out of the box."

Project-based NGOs, however, are more likely to select the pieces they needed from available materials and incorporate them into their own training programs. In this "cut and paste" approach, the end product may bear little resemblance to the original curriculum. The examples of Vallenpaz, CDI, and Yarnteen mentioned earlier illustrate this approach most vividly.

For industry-specific NGOs we found a great deal of variability depending on the industrial sector and the target groups. In sectors that require knowledge of specific software packages, for example health and tourism, the NGO would focus explicitly on the skills needed to operate the software. In other cases, the NGOs would cut and paste modules from different ICT training materials that met the requirements of the sector.

Figure 7: The multiple meanings of "adapting" ICT training materials

	Entry Point	"Adaptation"
Skills-based	ICT training material	Localize exercises and examples
Project-based	Social mission	"Cut and paste" relevant pieces into overall program
Industry-specific	ICT skills needs of industry	Could be either

In practice, the way an NGO adapts ICT training materials is not entirely an "out-of-the-box" or "cut and paste" process. We do not categorically claim that skills-based NGOs only follow an ICT curriculum without reflecting their social missions in the process. Similarly, a project-based NGO may appropriate entire sections of an ICT curriculum if it felt it was most appropriate for its training needs.

4.2 THE VALUE OF ICT TRAINING MATERIALS

All NGOs, regardless of training approach category, place a high value on **freely accessible training materials** that have already been localized by the curriculum provider (in terms of language, examples and other such elements that would be common to any organization providing training in a particular country or region). Without this foundation, NGOs would need to go to even greater lengths to develop locally relevant training programs. Again, this applies whether one is adopting an "out of the box" or "cut and paste" approach. Having access to a comprehensive set of materials, therefore, is the first point NGOs make when asked what they value about freely available ICT.

NGOs value those materials that are **modular** and, thus, more readily adapted to local training programs. Modularity in ICT training materials allows NGOs to choose pieces relevant to their own needs without affecting the flow of their own program. This flexibility enables NGOs to embed into their training programs those ICT skills that are more appropriate for their target groups. A rigid set of ICT training material that requires NGOs to follow a linear path from A to Z and where pieces of the curriculum are linked to each other are not as useful. The importance of modularity was mentioned by nearly every NGO we interviewed.

At the same time, NGOs valued **comprehensive** ICT training materials. Comprehensive curricula provide the NGOs with a complete picture of what an ICT training program in basic skills looks like. This enables an organization to develop a consolidated plan for its training program and more easily keep the programs updated and relevant to local needs.

Lastly, ICT training materials developed by recognized software companies, national training organizations, or international agencies contribute significantly to the credibility of NGO training programs. This credibility is crucial for developing new partnerships, attracting more students to the training programs, approaching other donors, or advancing issues related to digital inclusion at the national level.

4.3 INVOLVEMENT OF INSTRUCTORS

All NGOs mentioned the importance and involvement of their instructors. Since instructors are the frontline of service delivery, they are more attuned to the needs of their students and understand better the materials and methods that are most effective for the training. Many NGOs, irrespective of training approach, gather and integrate instructors' feedback into the ICT training programs, and facilitate the sharing of best practices. This is accomplished through email, focus groups, workshops, yearly meetings, and other mechanisms.

Instructors in project-based approaches are typically afforded greater control over the content and exercises, and they also may provide more input into the initial design and updating of training programs. In skills-based and industry-specific NGOs, instructor input is likely to be more about fine tuning a training program and sharing best practices rather than shaping the fundamental design.

The Mexican Institute for the Youth offers a variety of services to youth in marginalized areas, among them ICT training, through its network of "Interactive Centers Youth Power" (CIPJ). The organization engages instructors in a variety of ways to provide feedback about their experiences with the ICT training materials: what works, what doesn't work, and how to improve the effectiveness of the training programs. The following quote is an example of the feedback that the Mexican Institute for the Youth receives from its instructors in the field:

Instructor feedback is key	”The age of those who visit the CIPJ in Chetumal varies from 10-18 years old. For this reason we need to use the ICT training materials in a more dynamic way to accommodate the interests of all of our users. Our objective at the Center is to create an environment for youth that promotes learning and participation in their communities, and for this reason, we need to make the training more fun so they don’t feel that this is an extension of their school.” (CIPJ Chetumal Instructor, personal communication, 2007)

Ældremobiliseringen, an organization in Denmark that works with senior citizens, organizes periodic workshops where instructors gather and share their experiences with the ICT training program, discuss strategies that work best, and suggest program improvements.

4.4 THE IMPORTANCE OF TRAIN-THE-TRAINER PROGRAMS

Most NGOs devote considerable effort to preparing their instructors. To accomplish this, many institute train-the-trainer programs (TOT) to ensure quality standards and increase the effectiveness of training. TOT is also important for large NGOs that have a network of centers dispersed across different locations.

TOT programs include one or more of the following training components:

1. Training in the pedagogy of the organization
2. Familiarization with ICT training materials
3. Best practices for how to use these materials to meet the needs of their learners

Project-based NGOs place heavy emphasis on the pedagogical element because it is so closely tied to an NGO’s underlying philosophy of social development and human empowerment. These NGOs insist that their instructors embody their philosophy so that no matter what they teach they can be assured that overarching principles and goals define the training. As mentioned previously, project-based NGOs tend to provide their instructors with more autonomy and so this type of pedagogical training is crucial to their approach.

An interesting example is the TOT program developed by **WorkVentures,** a registered training organization in Australia. This organization works collaboratively with other NGOs in the country, such as The Smith Family and Yarnteen, to provide TOT programs using the three components of training listed above. They create easy-to-use handbooks for instructors that offer different strategies including: how to simplify language, use more screen shots, create handouts for students, and classroom tips for engaging learners most effectively. In addition, WorkVentures provides “snap cards” as references for the instructors (see Figures 8 and 9).

Figure 8: WorkVentures “Web Design Snap Card” – material for TOT programs based on UP curriculum

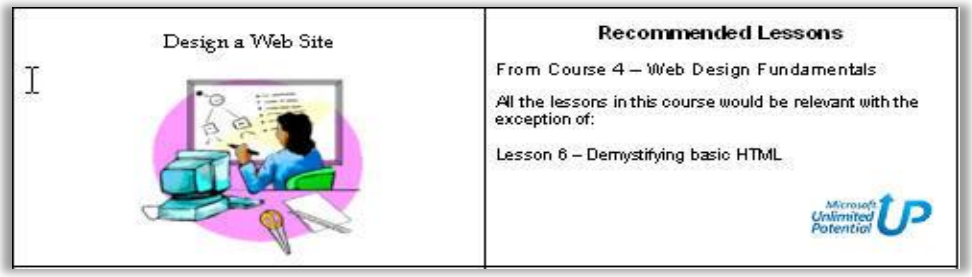
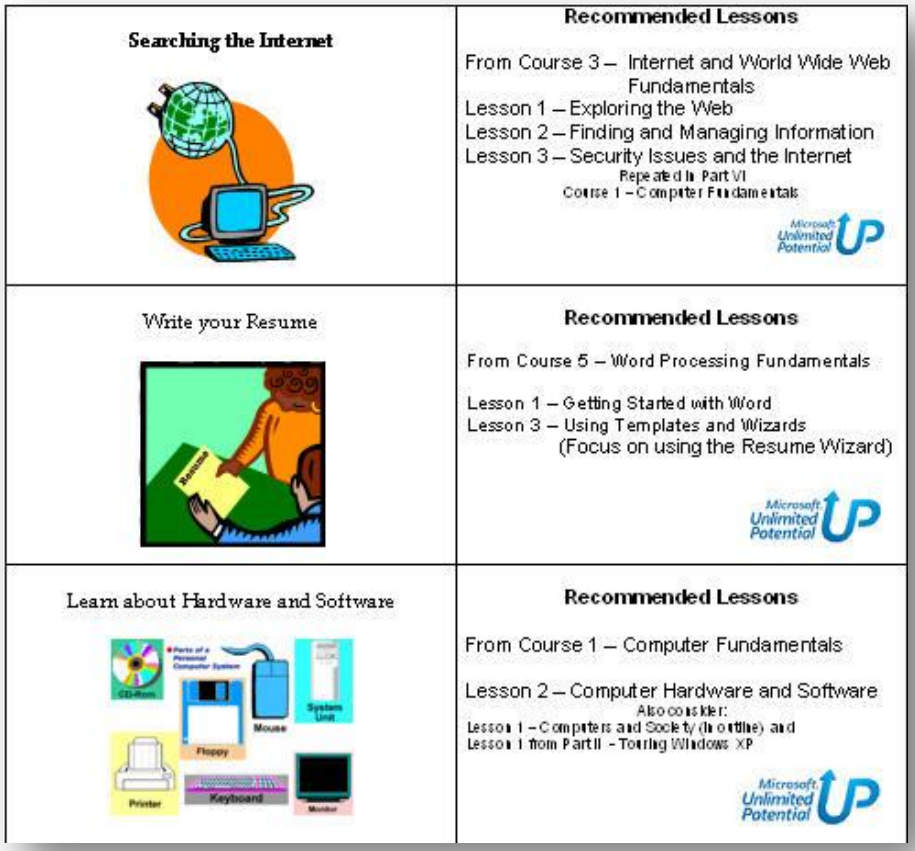


Figure 9: WorkVentures "Internet and Word Processing Snap Cards" – material for TOT programs based on UP curriculum



Source: WorkVentures LTD

4.5 INVOLVEMENT OF OTHER RELEVANT STAKEHOLDERS

Many NGOs involve other stakeholders in the process of tailoring their ICT training programs to local needs. The relevance of different stakeholders is highly contextual depending on the training approach, the characteristics of the local community, the target group, the mission of the NGO, etc. Below we highlight some examples of best practices.

NGOs with an emphasis on employability often engage employers from local industries to ensure responsiveness to the needs of the local labor market. Using some combination of surveys, workshops, focus groups, phone interviews, consultation with government, and reference to employment statistics, NGOs can determine: the relevant industries in the local economy; the type of skills different employers require; the type of jobs available (entry-level, or higher); and partnership possibilities with employers for on-the-job internships or for industry volunteers to provide training.

The example of Infoshare in Sri Lanka described earlier illustrates this industry engagement. During the first phase of the process, Infoshare organized a series of workshops with representatives from four industries to understand their market niche, employment needs, and the possibilities for cooperation. As

a result, Infoshare was able to develop curricular outlines that integrate a variety of skills relevant to each industry, and to understand thoroughly the role of ICT skills in each sector.

The sampled NGOs that include people with disabilities among their constituents (a small number) all had important external partnerships. For example the Austrian Computer Society partners with many training centers to provide European Computer Driving License (ECDL) training and certification for youth and the unemployed. Last year the NGO created "Barrierfrei," a program that provides ECDL training to people with physical and cognitive disabilities to improve their chances of getting a job. The NGO developed a public-private partnership with four stakeholders: 1) Bit Media, which provided the computer-based and web-based training material; 2) The Federal Ministry of Education in Austria; 3) Experts on education for people with special needs from the University of Lintz; and 4) Their own network of centers for ECDL training.

The program targeted four groups of people with disabilities: the blind and visually impaired, the deaf and hearing impaired, people with mobility handicaps, and cognitive impaired people. The ICT training materials were adapted depending on the group. One of the versions relied heavily on Flash animation where appropriate and also developed a plain HTML version for compatibility with screen readers and Braille display. For people with hearing impairments, a version was created with the material by reducing and simplifying the language. These training materials proved to be useful for other groups, especially for the elderly, children, and people whose native language is not German.

5. Strengths and weaknesses: Comparing the approaches

In this section we discuss the relative strengths and weaknesses of the different approaches, referencing a number of key criteria that emerged from the research. This analysis is based on patterns of responses and our broader knowledge of the field, rather than on a strict interpretation of specific data. As such, we make broad generalizations to illustrate the points, not because we contend they are universally true for every NGO in any given category.

Skills-based approach

Skills-based training is the most conventional of the three approaches. Because it focuses on mastery of specific skills, it is more recognizable by governments, certifying authorities, and employers. It is easier to standardize and typically covers a wider range of skills than the other two. Instructor preparation may also be easier since the training program is more complete with instructors having less need to create lessons on their own. As such, TOT programs can focus on familiarizing instructors with the training materials, upgrading their ICT knowledge and facilitating the sharing of best practices among instructors. Finally, the adaptation process is generally less onerous as it takes less effort to localize examples than to develop a program from the ground up as is more often the case with the other two approaches.

Among its weaknesses, many learners may not see the relevancy of the skills that are taught since they are not embedded in a locally meaningful activity to the same degree as the other approaches. As a consequence, skills retention may also be lower. These tendencies are more likely to occur in low-ICT penetration areas where there are fewer opportunities to utilize the skills.

Project-based approach

The project-based approach excels at engaging students in activities that are directly relevant or interesting. By embedding ICT learning within programs that are more deeply connected to the community, students are able to make more immediate use of their newly gained ICT skills and join a learning curve that gives them the confidence to continue to expand their knowledge and uses for ICT.

One of the drawbacks to this approach is the effort needed to develop such training programs. It is a time and resource intensive process. Furthermore, so much of the success of these programs rests on the abilities of the instructors, making train-the-trainer programs all the more important where it is a significant challenge to sufficiently impart the philosophy and training pedagogy of an organization on new instructors. Finally, certification may be a greater challenge since it is oftentimes more difficult to recognize the skills that will be learned in any given course.

Industry-specific approach

The industry-specific approach is mostly highly tuned to the needs of a local economy and the industrial sectors targeted by the ICT training. The intense focus on employment generation is welcomed by students, employers, and national and local governments. Student engagement is also high because of the strong employability prospects. Once the development process is complete and tested, there are significant opportunities for replication and scaling since the training programs are well defined. This approach is also very suitable for certification.

These programs require substantial effort to develop. NGOs must work with industry, government and community stakeholders to craft programs that meet employer and learner needs. These programs also place high demands on program coordinators. In many cases, a comprehensive training program will need access to a number of instructors and mentors with different areas of expertise in the industry.

Conclusion

This study described the efforts of NGOs in many parts of the world to bring the benefits of new technologies to disadvantaged communities through their ICT training programs. As illustrated through the analysis and examples, most of the organizations go to great lengths to make ICT skills training learner-centered, knowledge-rich, and most importantly, deeply connected to community needs. Fostering civic participation, critical thinking, upward economic mobility, and social integration were found to be the building blocks for making ICT training relevant to local contexts.

Accomplishing these lofty goals, however, is an incredibly time and resource intensive process. Providing access to ICT training materials (even ones that are available in the local language) is just the very first step. Even when training materials are freely available, it is the next step of crafting a training program to the needs of local communities that is often so challenging. This is especially the case with the project-based and industry-specific training approaches. NGOs with a project-based approach spend a significant amount of effort to integrate the ICT training within their organizational missions. NGOs who have adopted an industry-specific approach must understand the ICT and other job-related needs of multiple sectors in the economy, a process that is time consuming and resource intensive as well. In the case of skills-based NGOs, the process appears to be less onerous.

Each of the approaches has strengths and weaknesses. The skills-based approach may require less adaptation of training materials, but one must weigh all of the factors – target group, socio-economic environment, ICT penetration, NGO experience, etc. – when deciding on the approach that is most appropriate to any given setting. Context matters. We hope that the examples in this report provide a starting point for considering the array of issues and effort required.

ICT training is a critical piece of overall efforts to assure disadvantaged populations, many of whom first come into contact with computers through an NGO, can partake in the information revolution. It is imperative, therefore, that every effort is made to make this contact relevant and beneficial to the lives of these people.

References

Chapple, K. (2005). Promising Futures: Workforce Development and Upward Mobility in Information Technology. *Institute for Research on Labor and Employment, Working Paper Series, Paper iirwps-121-05.* Retrieved from: http://repositories.cdlib.org/iir/iirwps/iirwps-121-05

Infoshare. (2007). Year one report: Infoshare Unlimited Potential. Sri Lanka: Infoshare.

Kraft, R. & Sakofs, M. (1985). *The Theory of Experiential Education.* Boulder, CO: Association for Experiential Education.

Microsoft. (2007). Unlimited Potential in Action: Case Studies. Retrieved May, 2007, from http://www.microsoft.com/about/corporatecitizenship/citizenship/giving/programs/up/curriculum.mspx

Warshauer, M. (2003). *Technology and Social Inclusion: Rethinking the Digital Divide.* Cambridge, MA: The MIT Press.

The World Bank Group. (2003). Lifelong Learning in the Global Knowledge Economy. Challenges for Developing Countries. Washington, DC: The World Bank.

Annex 1: NGOs that participated in the study

NGO	Country or City	Organization's website
Asia		
The Smith Family	Australia	www.thesmithfamily.com.au
Yarnteen Aboriginal & Torres Strait Islanders Corporation	Australia	www.yarnteen.com.au
WorkVentures	Australia	www.workventures.com.au
Development Alternatives	India	www.devalt.org
Electronic Commerce Business Association (ECBA)	Taiwan	
Center for Research and Consulting on Management (CRC)	Vietnam	www.topic.edu.vn
Infoshare	Sri Lanka	www.info-share.org
Sarvodaya	Sri Lanka	www.sarvodaya.org
Latin America		
Instituto Crescer para Cidadania	Brazil	www.institutocrescer.org.br
CDI San Paulo	Brazil	www.cdisaopaulo.org.br
Corporacion Vallenpaz	Colombia	
CDI Colombia	Colombia	
Cooperative for Education (COED)	Guatemala	www.coeduc.org
CDI Mexico	Mexico	www.cdimexico.org
Instituto Mexicano de la Juventud	Mexico	www.imjuventud.gob.mx
Europe		
Austrian Computer Society	Austria	www.ocg.at/english
Finnish Association of the Deaf	Finland	www.kl-deaf.fi
Ældremobiliseringen	Denmark	www.aeldremobiliseringen.dk
Project Harmony	Russia	www.projectharmony.org
United States		
Jewish Vocational Service	San Francisco	www.jvs.org
Center for Women Enterprise	Boston	www.cweonline.org
Technology for All	Houston	www.techforall.org
People's Resource Center	Chicago	www.peoplesrc.org

Annex 2: Unlimited Potential Curriculum modules

Module	Learning objectives
1. COMPUTER LITERACY (1 Module)	
- Computer Fundamentals	Provides a solid foundation in basic computer concepts and the essentials of hardware, software, operating systems, and the Internet.
2. INFORMATION LITERACY (2 Modules)	
- Using the Internet and World Wide Web.	Covers exploring the Web using search engines, working with e-mail, and creating Web pages.
- Digital Media Fundamentals	Teaches students how to get started with digital media, including music, photography, and video.
3. PRODUCTIVITY APPLICATIONS (5 Modules)	
- Word Processing Fundamentals	Teaches students to use a word processor to write and revise a variety of personal and business documents, from simple letters and memos to complex layouts containing graphics and tables.
- Spreadsheet Fundamentals	Teaches students the basics of spreadsheet concepts and practices, including creating worksheets, editing data, building charts and graphs, and publishing spreadsheets to the Web.
- Presentation Fundamentals	Covers everything students need to know about putting together persuasive electronic presentations, from creating basic slide shows to adding graphics, audio, and video for rich multimedia presentations.
- Web Design Fundamentals	Takes students through the complete process of Web page design, from the basics of HTML to strategies for designing and building a complete Web site.
- Database Fundamentals	Introduces students to the basics of using a relational database to create tables, forms, and reports.

Annex 3: Interview protocol for NGO representatives

Name of the NGO:

Target Population:

A. "Life Cycle" of the typical CTC user/student

Have the respondent describe the typical process from selection of students to when they leave the center.

B. Background of the training programs

1. What are the goals of your IT training program?
2. When did the IT training program begin?
3. How long has the NGO been providing IT training?
4. Are there any other major partners for your IT training program? How are they supporting it? (Volunteers, equipment, cash, etc.)
5. Do you provide any other kind of training besides ICT training?

C. Training Environment

6. What are the different training approaches to ICT training?
    a. Formal, non-formal, and informal
    b. Embedded within the context of social issues OR stand alone training (health, civic engagement, community development
    c. IT Training integrated with other types of skills training (i.e., mentoring for job applications, entrepreneurship, SME, microfinance, etc.)
7. Who are the instructors? (staff, volunteers, contractors from RTO)
8. What are their backgrounds? (i.e. computer experts or teachers)
9. What qualifications do you require for your instructors?
10. What preparation does your NGO provide to the instructors (i.e. TOT, other instructor training programs)
    a. If yes, what kind of training do they receive?
    b. If no, are there other resources available for instructors to obtain training?

D. ICT training materials

11. What kind of ICT training (for users) does your NGO provide? (Basic ICT skills, advanced, certified – ICDL, MOS -, etc.)
12. Where do you get the materials for the IT training? (self-developed/adapted, other NGOs, government, private company, educational institution)
13. How satisfied are you with your IT training materials?
    a. What are your unmet needs for your IT training materials?

E. The process of developing, adapting, and sharing ICT training materials

14. How does your NGO develop and adapt training materials to fit the needs of your target group(s)?
    a. Do you assess the needs of the target group? If so, what methods do you use (focus groups, survey, participatory appraisal, informal discussion, other resources?)
    b. What is the criteria you use for developing and adapting IT training materials?
15. Describe the process by which training materials obtained from other sources were adapted by your NGO:
    a. How many different curricular resources were used/combined in creating your IT training materials?
    b. Where did you obtain the curricular materials?
    c. Were these resources available free of charge (or through a grant) or did you have to pay for them?
    d. Who adapted the training materials (NGO HQ staff, center managers, instructors, consultants, other outside organizations)
    e. How well do these adapted materials fit the needs of your target group(s)
    f. What were the main challenges in adapting the resources you had available to you?
    g. Have you subsequently shared your adapted curriculum with other NGOs or training materials commons? What affected the decision to share or not to share (copyright issues, cost of adaptation, issues of competition)
16. Do you use the UP Curriculum for your IT training?
    a. If yes, please explain how you use it (reference material, adapting modules, training for instructors, etc)
    b. If no, explain why (not relevant for our needs, too advanced, too basic, we are satisfied with our own)
17. What are the most important characteristics you look for in the ICT materials you use for your training program?