

Knowledge Management for Data Use and Decision Making in International Public Health

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The Measurement, Learning, & Evaluation (MLE) Project for the Urban Reproductive Health Initiative (Urban RH Initiative) identifies which approaches and interventions are most effective in increasing contraceptive prevalence rates in some of the fastest growing cities in project countries in sub-Saharan Africa and South Asia. The MLE Project serves as the central technical resource for local efforts to monitor and evaluate Urban RH Initiative programs in the project countries. The MLE Project identifies and documents evidence-based interventions and best practices for providing health services to the urban poor and sharing information globally about promising approaches with policy-makers, program managers and researchers. The MLE Project builds skills and professional capacity to undertake rigorous measurement and evaluation of population, family planning and integrated reproductive health activities targeted at poor and vulnerable urban populations.

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Table of Contents

Chapter 1: Introduction1

 1.1 The Scope of This Paper.....2

Chapter 2: How People Share Knowledge and Build Skills—An Overview of Learning Theories.....3

 2.1 An Ecological Approach to Learning.....3

 2.2 Using Existing Networks and Relationships3

 2.3 Meeting Clear Needs3

 2.4 Providing Opportunities to Move from Observer to Participant3

 2.5 Translating Research Findings into Action4

Chapter 3: Audiences.....5

 3.1 Policy-Makers.....5

 3.2 Researchers.....6

 3.3 Program Managers.....7

Chapter 4: Platforms that Support Knowledge Management9

 4.1 In Print.....9

 4.2 Web Sites.....10

 4.3 Interpersonal Communication13

 4.4 The Classroom.....18

Chapter 5: Conclusions.....23

Glossary25

References29

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Chapter 1: Introduction

Organizations involved in global efforts to attain good health for all and to achieve the United Nation's Millennium Development Goals (MDGs) by 2015 have identified a number of key barriers to progress. One of these barriers is specifically related to the gap between research findings and decisions that are made in practice (WHO, 2006). The gap means many public health problems remain intractable, despite known solutions. The authors of this paper examine ways in which knowledge management (KM) can increase engagement between research, policy-making and public health practice to close such gaps. We base our understanding on the notion that improved knowledge sharing will lead to wider understanding, enhanced cooperation, more effective use of good practices and better health outcomes. KM is important as it can provide cost-effective ways to access knowledge and engagement between different stakeholders—therefore making knowledge sharing more possible.

International public health research is often conducted in resource-constrained environments with poor Internet connectivity and overworked and dispersed staff. These drawbacks are balanced by people who are typically active information seekers, enthusiastic about their work, committed to learning, educated and adept at working collaboratively. KM provides a means to communicate with such a dispersed and mobile professional community that may have few opportunities for interpersonal interaction. KM is a way of transferring knowledge to help identify solutions to public health problems. In short, KM provides a solution for many of the explicit challenges associated with international public health research.

The discipline of knowledge management has three major elements:

- **People:** Individuals or groups who create, share and use knowledge, and who collectively comprise the culture that nurtures and stimulates knowledge sharing compose a vital component. In this paper, the people include researchers, policy-makers, decision

makers and other stakeholders in international public health research.

- **Processes:** This aspect involves the methods to acquire, create, organize, share and transfer knowledge. In this paper, we examine various communication platforms that are used to share and transfer knowledge.
- **Technology:** Technology includes the mechanisms that store and provide access to the raw materials of knowledge—data and information, as well as knowledge itself that is acquired, created, organized, shared and transferred among people in various locations.

Different fields and organizations within the same field, such as international public health research, use different terminology to refer to knowledge management or knowledge management activities. For instance, KM may be referred to as data use, research to practice, translational research, evidence-based decision making and strategic planning, among other terms. KM is an approach that supports identifying, capturing, sharing, applying and creating knowledge, as well as making knowledge accessible and usable for the intended target audience (Liebowitz, Schieber & Andreadis, 2010). KM supports collaboration, empowers individuals and groups to work more effectively, and improves business, policies and practices. In the case of KM for health and public health research, it ultimately supports better health outcomes.

The *knowledge* in knowledge management comes from application of research findings, as well as perspectives and experiences that shape research questions, define methodologies and determine how research findings will be applied. Systematic efforts are needed in international public health research to provide evidence of knowledge gained in an accessible, user-friendly format accessible to key stakeholders. This is a key step in bridging the barrier between research findings and practice; it involves the incorporation of the best available evidence from a systematically collected, appraised and analyzed body of knowledge into program and policy decision making.

A strategic KM plan bridges the gap between research and practice, incorporates the people-process-technology components of KM and facilitates increased engagement between researchers and their stakeholders throughout the research process. The first step in a KM strategy is to identify the research stakeholders. Engaging stakeholders early and systematically in the research process enables the right questions to be asked in the right way and, in turn, to define data-collection activities that will generate quality information that can be used (Foreit, Moreland & LaFond, 2006). A KM strategy would make evidence available to decision makers through communication platforms that facilitate the translation of research findings into improved capacity and, ultimately, better health outcomes (Dobbins, Hanna, Ciliska, Manske, Cameron, Mercer, et al., 2009).

A KM strategy would typically incorporate four key processes to achieve this end:

- **Knowledge identification and capture:** This occurs as part of the formulation of the research question. One needs to identify the gaps in knowledge and the potential sources of data to address these gaps, and then develop systematic processes and tools to capture the required data to respond to the knowledge gap identified.
- **Knowledge sharing:** This should occur throughout the research process, as well as when the results are available.
- **Knowledge application:** This occurs when new methodologies are applied or replicated or when research findings are translated into practice.
- **Knowledge creation:** This occurs throughout the research process, but specifically when research findings are applied in practice, increasing skills and capacities and encouraging innovation (Liebowitz et al., 2010).

The options and opportunities to shape a KM strategy with the expansion of information communication technology (ICT) are enormous. The field of international public health research is experiencing an escalation in its ability to share and retrieve knowledge through ICT, an umbrella term

for electronic communication devices encompassing: radio, television, mobile phones, computers, network hardware and software, as well as the services and application platforms associated with them, such as E-mail, videoconferencing and distance learning, to name a few. ICT makes access to knowledge more readily available to more people in more places. In addition to sharing information, ICT also facilitates interpersonal communication and partnership building across the globe.

While making a huge contribution to knowledge sharing, ICT has limitations. It cannot completely replace face-to-face contact for building trust, developing strong working relationships or sharing enthusiasm. Infrastructure and capacity to use ICT in many developing country contexts are inconsistent. For this reason, ICT is an important component of a comprehensive KM strategy that should also include face-to-face communication platforms, such as meetings and conferences.

1.1 The Scope of This Paper

This paper is intended for international health program managers and researchers whose role includes a communication or KM component. KM often has different purposes in different research organizations and different contexts; in this overview, we are looking at KM strategies that facilitate *sharing knowledge*, *building skills* and *using data for decision making*.

KM is an emerging discipline within the field of international public health research. There is little published on the matter in this field; as such, it was not feasible for the authors of this paper to conduct a systematic literature review. Instead, the authors supplemented their findings from the literature with interviews with organizations working in international public health research that are utilizing a variety of KM platforms. Examples of how people in international public health research have combined traditional knowledge sharing activities with new technologies and adapted them to low-connectivity and resource constrained environments are provided throughout the paper. Through these case studies, we demonstrate how a variety of communication and learning platforms can be used to execute a KM strategy.

Chapter 2: How People Share Knowledge and Build Skills — An Overview of Learning Theories

Program managers and researchers have many different ways of sharing knowledge and building skills and, as a result, a use of various tools and platforms that support KM may be appropriate. While KM is often seen as a mechanism to store and share knowledge, in this document, the scope of the term *platform* is expanded. International public health researchers and program managers want people to engage with the new knowledge—to learn from new knowledge and, when appropriate, act upon this new knowledge. For this reason, the authors of this paper suggest KM strategies will work best if guided by a sense of how people acquire information and build skills; that is, how people learn. This section provides an overview of learning theories to assist communication and KM teams in choosing an appropriate combination of tools to reach their intended audience and specific goals.

2.1 An Ecological Approach to Learning

A range of learning theories (Situated Learning Theory, Social Practice Theory of Learning and Constructivist Education Theory) suggest information acquisition and skill building occur within an ecological framework; that is, information acquisition and skill building is influenced by, and influences, factors at the individual, interpersonal, community, organizational and policy levels. An ecological framework suggests that learning can be enhanced through mutually reinforcing message components at different levels (e.g., individual, community or organizational). Accordingly, a KM strategy with multiple, mutually reinforcing communication channels at different levels is likely to be more effective in supporting learning than a single communication platform. Many of the strategies described in this paper use multiple mutually reinforcing components, such as a face-to-face meeting reinforced by a video conveying the message to set the tone of the meeting (for an example of using a video in this way, see The Girl Effect Web site description in the next chapter).

2.2 Using Existing Networks and Relationships

A number of theories suggest learning takes place in the context of social relationships—between the expert and learner, and between learners. For instance, Lave and Wenger (1991) argue that learning, as it normally occurs, is a function of the activity, context and culture in which it occurs (i.e., it is situated). Therefore, social interaction is a critical component of situated learning—learners become involved in a “community of practice” that embodies certain beliefs and behaviors to be acquired. This suggests that communication platforms that leverage existing networks are likely to be most effective. This theory, along with social learning theory, are reinforced throughout KM literature. KM authors tell us that tacit knowledge can only be passed from one person or place to another in the context of a social network. Ease of transfer depends on the quality and strength of the source-recipient relationship (Bate & Robert, 2002). Many communication strategies utilize and nurture Web-based social networks, such as Facebook and Twitter. Meetings, listservs and communities of practice (CoP) all build and enhance existing networks to share knowledge.

2.3 Meeting Clear Needs

Another helpful model to refer to in developing KM strategies is Knowles’ Andragogical Model, which clarifies the difference between adult and child learning styles. One of the key points in this model is that adult learning has to meet a perceived real-life need (Knowles, Holton, & Swanson, 1998). For this reason, new knowledge or information should be presented as a solution to a clearly defined problem, with the benefits clearly articulated.

2.4 Providing Opportunities to Move from Observer to Participant

The architects of the contemporary “communities of practice” literature, Lave and Wenger (1991) developed an additional theory Legitimate Peripheral Participation (LPP), based on the aforementioned theories. In essence, LPP is the process by which an individual enters a community of professionals and moves from the periphery to a fully participating member of the community.

Learning takes place in the movement from observer to participant. Much of this theory comes from examination of different types of apprenticeship relationships. Wenger and Lave examined the community-based training or apprenticeships used by Yucatec midwives from Mexico, Vai and Gola tailors from Liberia, naval quartermasters, meat cutters and recovering alcoholics (from Alcoholics Anonymous). Wenger and Lave observed each of these cultures of learning to gain an understanding of how experienced practitioners pass skills to new members of their professional or duty-based community.

Communication tools and platforms that support KM can provide many opportunities for peripheral participation—an obvious example is a Web site where people can easily enter and leave anonymously. Active participation can be fostered through interactive platforms including face-to-face contact, listservs or discussion forums. An excellent example of peripheral participation is Learning for Performance, described in chapter 4. The LfP Web site provides an opportunity for peripheral participation and exploration of the methodology.

2.5 Translating Research Findings into Action

Educational psychologist Benjamin Bloom (1956) developed a classification of the different types of learning. This taxonomy includes three domains:

- **Cognitive:** This involves knowledge, comprehension, critical skills, procedural patterns and concepts. It includes application.
- **Affective:** This involves the way people react emotionally, values, empathy, motivation and attitude.
- **Psychomotor:** This aspect involves change or development in behavior or skills.

Bloom's taxonomy suggests three distinct goals of learning; a learning intervention would provide the opportunity to advance in all three domains.

The cognitive domain is the most relevant to sharing knowledge, building skills and promoting data use in international public health research. Within the cognitive domain, there are six consecutive steps in

learning—knowledge, comprehension, application, analysis, synthesis and evaluation. The learner must pass through each one to get to the next step. In transferring knowledge into action, it is important that learners complete the knowledge and comprehension stages. Once they do that, it is at the application stage that learners begin to transfer knowledge into skills. Understanding learning as a staggered process, and including steps such as application and analysis, can help communication platforms adequately foster a space for learning.

Chapter 3: Audiences

KM strategies need to be tailored to specific audiences to be effective. This paper will focus on three distinct audiences in international public health research: policy-makers, researchers and program managers. There are particular opportunities and challenges associated with targeting communications to each of these audiences. We have profiled these three audiences below, based on evidence where possible, to assist in creating effective ways to reach them in an effort to identify, capture, share, apply and create knowledge.

3.1 Policy-Makers

Communicating evidence to policy-makers is not only a mechanism to translate research into improved health outcomes and healthier lives, but also provides a signal to policy-makers that money spent on research is beneficial (Hennink &

Stephenson, 2005). Having access to the best available evidence allows policy-makers to craft policy that is transparent, efficient, equitable and effective and can attract durable public support.

Despite the importance of communicating research to policy-makers, there are many challenges. These challenges are implicit in the policy-making environments of resource constrained settings and may include:

- a lack of intermediary institutions, such as think tanks, professional associations or advocacy organizations;
- centralized and “closed” policy processes, with limited channels for participation;
- precarious democracy;
- lack of confidence in research; and
- lack of skills in interpreting research (Court & Cotterrell, 2004).

The Researcher and Policy-Maker Relationship

There has been some examination on how best to communicate research findings to policy-makers. Building and maintaining a relationship between a policy-maker and researcher is central to the utilization of research findings (Lomas, 1997; World Health Organization, 2004; Brehaut & Juzwishin, 2005). International public health researchers can expect resistance to findings that disrupt long held assumptions or suggest wide-ranging change (Carden, 2009). However, if researchers keep policy-makers informed throughout the research process and are attuned to the needs of key stakeholders, then policy-makers are more effective in their decision making (World Health Organization, 2004).

Different models of stakeholder engagement are often employed to ensure ongoing support for research projects, including launch meetings, advisory boards and seminars. Other more traditional formats include forums with donors, especially for commissioned research. Non-commissioned research is usually disseminated through the traditional academic channels of conferences and journal articles. In such cases, researchers rely on civil society groups, the media and other advocates that often play an intermediary role in bringing policy-relevant research to the attention of politicians and the public.

However, Carden (2009) offers a warning that “there is no list of ‘best practices’ when it comes to research influencing public policy.” Influence needs to be best understood as a process or combination of activities and relationships interacting within a specific context. Research can at best be expected to be a minor factor in all of the forces affecting policy making. For this reason, researchers may best aim for routine and incremental change, as these are the easier decisions for policy-makers to enact (Carden, 2009; Lavis, Robertson, Woodside, McLeod & Abelson, 2003).

Some suggested ways for increasing the utilization of research findings by policy-makers are creating stronger networks, improving dissemination and building capacity for local research (Lavis et al., 2003).

3.2 Researchers

The final step of the scientific methodology of research is to present or publish one's findings and procedures to allow peer review. Peer review provides an opportunity to share and check research methodologies and replicate findings. Therefore, researchers are not only sources of new knowledge, but also important recipients of research findings.

Researchers have well-established communication channels—including academic conferences, peer-

review journals, books and seminars. These platforms are institutionalized and are often rewarded within the structure of a university or research center (Lomas, 1997). These are often exclusive forums, where researchers have little contact with program and policy decision makers, research subjects or other stakeholders. Meanwhile, feedback loops among researchers, the subjects of research and other stakeholders are typically poorly established, thereby undermining the application of research findings.

Databases for Decision Makers

Evidence-based decision making is a movement that encourages policy and programmatic decisions to be based on a review of the best available evidence and requires access to new and current research data—making KM central to the practice.



There are a number of databases that provide libraries of policy-relevant research or, preferably, libraries of research compilations. One such library is provided by the Canadian Institute of Health Research, called Health-Evidence (<http://health-evidence.ca/>), which provides a database of published research syntheses for program decision makers, service providers and policy-makers. The Web site is easy to navigate and has thousands of registered users (80% Canadian, the rest from the United States, Australia or the United Kingdom). Newsletters are distributed quarterly to individual users and through other partner networks.

There are other examples of online databases providing high quality research to decision makers. The Cochrane Review (<http://www2.cochrane.org/reviews/>) is a database of abstracts and, where available, plain-language summaries of all Cochrane systematic reviews. The World Health Organization's Hinari Access to Research in Health project (<http://www.who.int/hinari/en/e>) has enabled access to 7,000 journal titles to health institutions in 109 countries, areas and territories, benefiting thousands of health workers and researchers and, in turn, contributing to improved health worldwide. Specifically for the field of international reproductive health, the K4Health Project manages POPLINE (www.popline.org). Both of the WHO and K4Health databases include links to full text documents and are easily searched.

Dashboards and similar tools: My Public Health (<http://myph.org/>) allows a user to customize a Web interface to access information needed for efficient decision making. Such customized Web pages are called “dashboards” due to their similarity to an individual's automobile dashboard, where key information unique to that individual's car is provided. This prioritizes data sources and makes them available for quick review—making it easier to use the data for decision making.

Other Web-based tools allow for efficient retrieval and manipulation of data. One example of this is Macro International's Statcompiler (www.statcompiler.com/), a tool that allows users to calculate basic statistical associations with Demographic Health Survey data.

Ensuring that the research findings reach beyond other researchers in the field requires a more concerted effort. ICT provides opportunities for researchers to communicate in different ways with broader audiences. An example of this is Bill Brieger's blog, *Malaria Free Future*, described in chapter 4.

3.3 Program Managers

Like policy-makers, program managers benefit from access to research findings in helping them tailor and target programs to be more efficient and effective. The U.S. Agency for International Development (USAID)-funded Knowledge for Health (K4Health) Project has researched the information needs of a variety of stakeholders working in health systems throughout the world, including program managers. The results of a global online survey indicated that 61% of program managers expressed a primary need for more information on evidence-based practices (Knowledge for Health, 2009). Research by Revere, Bugni, Dahlstrom and Fuller (2010) suggests that public health practitioners meet their information needs by using information resources that are easy to access and use, up-to-date, flexible, free or low cost, predigested or summarized, stable and are specific to a practitioner's field. Peers and colleagues are another frequent source of information.

Chapter 4: Platforms that Support Knowledge Management

Successful and productive KM strategies usually employ a variety of platforms to achieve their goals. This section reviews different platforms suitable for sharing research findings and building research skills. Through case studies, we also suggest ways in which the various platforms and approaches can be integrated with other platforms to meet the needs of a variety of stakeholders.

ICT has many benefits that can reduce costs and increase efficiency, such as elimination of distance barriers, the automation of information provision and highly adaptable formats (Maxfield, 2004). However, the authors have attempted to ensure this document is not limited to new ICT, but covers traditional knowledge sharing activities that have been historically effective (e.g., academic journal articles and meetings). Indeed, much of the literature around KM stresses the need to ground a KM strategy in face-to-face communication (Fahey & Pursak, 1998; Kols, 2004). For this reason, this paper covers a variety of these traditional knowledge sharing approaches, including the use of champions (i.e., advocates for an issue or cause), meetings and workshops.

The paper also highlights ways in which traditional platforms can be complimented by new technologies to increase accessibility for broader audiences, such as using the Internet to engage a community of practice following a meeting or filming a presentation and posting it to YouTube.

4.1 In Print

Policy briefs and fact sheets: Policy briefs and fact sheets are established formats for communicating research findings to policy-makers and program managers. This is not always a direct process—intermediaries, such as journalists or civil society groups, may play a role in creating and publishing the materials and in the advocacy efforts related to them. They can be easily printed as handouts, E-

mailed in portable document format (PDF) and posted online. Typically, a policy brief will define the policy issue or problem, provide clear policy or programmatic options, outline barriers to implementation/resolution and provide recommendations. A number of advocacy and communication organizations create policy briefs for wide use, such as the Guttmacher Institute (<http://www.guttmacher.org/sections/index.php?page=sheets>) and the Population Reference Bureau (<http://www.prb.org/Publications/PolicyBriefs.aspx>). Other projects have online resources for prioritizing issues, crafting policy briefs and utilizing policy briefs for policy dialogue, such as the SURE project (<http://www.evipnet.org/local/SURE%20WebWebsite/guides.htm>).

Journal articles: Journal articles are a standard way to communicate high quality research findings. The peer review process for journal articles provides quality assurance and credibility not provided by other platforms. As a result, journal articles are a popular and effective way to communicate international public health research methods and findings among researchers.

Most journal articles are also available electronically in PDF, which means they are easily downloaded, stored and shared. However, the format, language and type of information presented in journal articles do not often include discussions that are always relevant to policy or program decision makers. Journals can also be expensive and inconvenient to access or download, since many require payment for online access to the articles.

As subscriptions or online access to journals can be expensive, the articles are often inaccessible to decision makers, creating a barrier to promoting evidence-informed decisions. One solution to this is open access publishing. Open access journals are available online to readers without charge. In open access journal publications, the costs associated with the journal (editorial staff, production, etc.) may be subsidized, such as support from an association, nongovernmental organization or university.

The Journal of Development Effectiveness

The *Journal of Development Effectiveness* (JDE), published by Routledge, aims to support evidence-based policy-making to enhance development effectiveness. It does this by publishing papers that report evidence of the impact of projects, programs and policies in developing countries. Unlike many other academic journals, JDE has a policy of “learning from mistakes”—it gives full consideration to papers that report interventions with no impact or negative impact, thereby avoiding the common publication bias toward papers with positive results.



The journal has become a hybrid, publishing both open access and proprietary articles in a system called iOpen Access. Requests at JDE for open access are primarily from research funders, who pay a fee to make an article freely available.

Open access can occur through a number of different mechanisms. For example, the entire journal may be open access, specific articles only are open access or a journal or specific articles become open access after some time (delayed open access). Examples of open access journal publications in the field of international public health include the *Bulletin of the World Health Organization* (<http://www.who.int/bulletin/en/>) and the Guttmacher Institute’s *International Perspectives on Sexual and Reproductive Health* (<http://www.guttmacher.org/journals/toc/ipsrh3601toc.html>).

4.2 Web Sites

Many of the platforms described in this paper are Web-based or have a Web component. A Web site is a collection of Web pages (documents, images, videos or other digital assets) hosted on one or several Web servers, usually accessible via the Internet, cell phone or a local area network (LAN). The pages of Web sites can usually be accessed from a common root address called a uniform resource locator (URL) and usually reside on the same physical server. Some Web sites require a fee to access some or all of the content.

There are many advantages of using Web sites as a KM tool for identifying, capturing and sharing the use of knowledge, in addition to skill building and promoting data use. Web sites can be routinely updated and recipients can access up-to-date information at their convenience. These sites are accessible all over the world, providing an inexpensive way to reach a large audience. Sites may provide links to other sites on the same topic, easily creating a hub to similar sites. The interactivity of Web 2.0 technology (the version of the World Wide Web that took effect in 2004) makes Web sites an excellent platform for building skills through a formal program or enabling collaborative and social learning.

While Web sites provide a means to share knowledge, those who do not have access to a computer or an Internet connection are unable to take advantage of such resources. However, most policy-makers, researchers and program managers in international public health have a computer and Web access; this access is also rapidly expanding in low and middle income countries.

Web-based resource centers: Within the field of international public health research, there are a number of Web sites that function as resource centers such as Essential Health Links (<http://www.healthnet.org/essential-health-links>), available through Academy for Educational Development's (AED's) SATELLIFE Web site. This site provides a portal to more than 750 useful

Web sites for health professionals, medical library communities, nongovernmental organizations and others in developing countries. It is intended to address the increasing demand for easy access to relevant, reliable health information on the Internet.

More topically-specific Web-based resource centers

Learning for Performance

Rather than providing pre-packaged learning materials, IntraHealth's Learning for Performance (LFP) Web site (<http://www.intrahealth.org/lfp/overview.html>) is an interactive tool kit for health professionals to evaluate learning needs and design their own training materials in alignment with the learner's job responsibilities. This Web site is based on *Learning for Performance: a Guide and Toolkit for Health Worker Training and Education Programs*, a 2007 publication of the USAID-funded Capacity Project managed by IntraHealth. The Web version was posted in 2008.

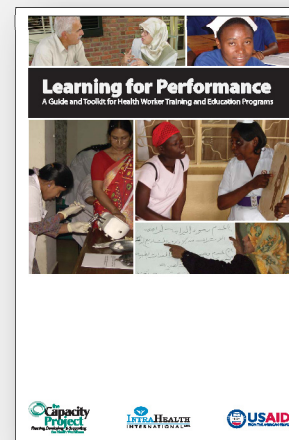
While most people typically use the print version, the online version is a great marketing tool and provides a platform for someone to explore the tool before deciding to use it. The LFP site is also often presented in meetings and conferences to provide an overview to the methodology and process to evaluate learning needs. The home page of the tool displays a graphic that allows the user to browse the tool, providing descriptions of each stage of the methodology.

Cathy Murphy, the author, explains that "people seek information and learn in different ways; additional platforms or formats address different preferences for information acquisition."

The component tools can also be downloaded as Microsoft Word documents, so they can be edited and adapted to different settings and contexts. The site also includes self-study materials that participants can download in advance of a workshop, allowing the trainers to be more efficient and focused on solidifying knowledge and skills. Further supplementary material to help implementation of the methodology are also available on IntraHealth's Intranet for field staff.

The LFP Web page was originally promoted through IntraHealth's Web site, listservs and on touch-screen computers at conference display booths. Initially, the primary audience was IntraHealth staff, other international nongovernmental organizations and country-level health workers implementing training and education programs. The benefit of the Web platform is that it reaches a wide audience, but this also means it is difficult for IntraHealth to monitor how it is being used and by whom.

The simplicity of the Web format makes it well suited for low-connectivity contexts and for printing and distribution of hard copies of posted materials. It also makes it easy to revise and update for different IntraHealth projects.



include the MLE Web site (<http://www.urbanreproductivehealth.org>), which serves as a resource center for the latest evidence-based research on urban reproductive health, AIDTSAR-One (<http://www.aidstar-one.com>) for the HIV/AIDS programming community and the CapacityPlus Project's HRH Global Resource Center (<http://www.hrresourcecenter.org/>) for the health workforce and management community.

Blogs: A blog is a Web site or part of a Web site that presents commentary through “posts” or updates by individuals or organizations. Posts are usually displayed in reverse chronological order and provide readers with the ability to comment on and rate the previous posts. Many blogs provide readers with insights into an individual's or organization's

position on specific topics of interest (e.g., such topics as politics or news events). Blogs are typically text only, but can also incorporate music, photography, video and links to related blogs and Web sites.

The ability for readers to leave comments on a blog is important as it provides a platform for ongoing dialogue between the writer and regular readers that is captured, archived and accessible. Blogs can assist in developing relationships between organizations and their audiences.

Blogs are easy to start but can be difficult to maintain. Establishing a loyal audience requires regular updates, engaging content and captivating writing style; characteristics that require time and

Malaria Free Future

An example of a blog from the world of international public health research is the Malaria Free Future blog, located at: <http://www.malariafreefuture.org/blog/>. The blog is associated with a project of the same name and is updated regularly by Bill Brieger, a professor at Johns Hopkins Bloomberg School of Public Health and a senior malaria advisor for Jhpiego, an affiliate of the university. Brieger, has a strong online presence (his photograph at right is from the blog site), teaching three online courses through the university and maintaining a FaceBook site and a Twitter account. He also maintains a listserv with over 430 subscribers through which he sends out abstracts of new research. With the Malaria Free Future blog, Brieger provides a public face to the project and an important health issue.



This blog is updated two or three times a week, has a sign-up feature so that readers can be E-mailed updates of new posts, provides updates on Web content formatting called Really Simple Syndication (RSS), has links to related blogs and other Web sites, and has a space where readers can leave comments to encourage dialogue around blog posts. Brieger reports that each post can take up to two hours, with additional time spent on ensuring links are up-to-date and checking comments.

The blog started in November 2006 and had 516 posts by 2011. It covers a wide variety of topics around malaria (e.g. advocacy, scientific findings and health system strengthening). Blogs topics cover a wide range, including advocacy or opinions. The intended purpose of the blog is to get new research findings to colleagues in the field who cannot otherwise access journal databases or have time to sort through new research. The new research findings would ideally help colleagues with their local advocacy efforts.

skill. Many blogs are not updated routinely and thereby can damage rather than enhance the reputation of the blogging author or organization. Many international public health research organizations have blogs maintained by a variety of people writing on different topics, sharing the workload in a manner that is sustainable. However, with several contributing writers, creating a recognizable and consistent voice for the organization can be more difficult.

4.3 Interpersonal Communication

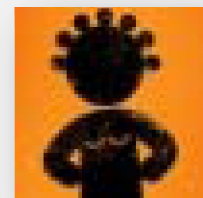
Presentations and lectures: Presentations are a more traditional method of knowledge sharing—a person standing in front of a room talking about a specific topic. A good presentation will usually

include an interactive component involving the audience, such as taking questions and allowing other dialogue. Like all traditional knowledge sharing techniques, presentations can be enhanced and disseminated with newer technologies. Presentation software (e.g., Prezi and Microsoft PowerPoint) can make presenting complex matters in a simple format relatively easy. Prezi allows easy preparation and presentation of data visually in diagrams, graphs and flow charts that can be projected on a screen. Slides can also be printed as handouts, posted online or E-mailed to people.

Many advocacy groups, including Guttmacher Institute (<http://www.guttmacher.org/sections/index.php?page=ptools>) and Population Reference Bureau (PRB)

The Girl Effect

An example of a simple short video available online is available on The Girl Effect Web site (<http://www.girleffect.org/>). This video was designed as a policy advocacy tool that anyone could use, in any context. It is created as an animated video from slides of text, with an audio soundtrack. The video escapes the usual clichés of depicting girls in poverty. There are no pictures, a strategy to move the focus from girls as “poster-children” and victims of poverty to girls as part of the solution.



Along with the soundtrack, the video engages viewers by asking them to imagine a girl in poverty, letting viewers provide their own visual imagery and context, and making the video relevant to a wide audience. In creating the video, Nike Foundation used its relative advantage in international development and strong business relationship with creative agencies through Nike Corporation. The Girl Effect provides a unique platform to tackle the issue from a slightly different angle by focusing on raising awareness and reframing policy dialogue.

The simplicity of the design and message makes the message immediate and powerful. This was deliberate, explains Emily Brew, brand creative director at the Nike Foundation: “We would never say the issue was simple. But complexity often stifles dialogue, so we really wanted a simple message to provide common ground or a starting point for discussion.” The Girl Effect video is often used at the beginning of stakeholder meetings and workshops to set a tone. Some of the foundation’s partners were resistant to the simplicity of the message, but when they witnessed the reaction of larger groups, they realized the power of the video.

The general public was initially not the intended target market for the video, but it has become widely seen with nearly 750,000 views on YouTube at the time this paper was published. It has also been used by other organizations to raise funds and to gather support among clubs and societies for girl-orientated projects. As new, complementary products are developed, the broader audience will be taken into account.

(<http://www.prb.org/Publications/GraphicsBank/PopulationTrends.aspx>), make their slide presentations on key topics available for anyone to adapt and use. Presentations can also be filmed and uploaded to YouTube (www.youtube.com) or SlideShare (www.slideshare.net). These media standardize file formats, decrease file sizes, make presentations widely available and easily retrieved.

PRB's first annual "Malthus" lecture is an example of dissemination of a live lecture through electronic media (<http://www.prb.org/Journalists/Webcasts/2010/malthuslecture.aspx>). A presentation by Joel Cohen on meat was delivered in 2010. A Web cast of the presentation and the question and answer session are posted online for viewing by a wider audience, in any time zone and at any time in the future.

Technology Entertainment and Design (TED), based in New York, NY and Vancouver, Canada, offers a global set of conferences called Ideas Worth Spreading. Owned by the Sapling Foundation, the talks have been offered free for viewing online, under a creative commons license, through <http://www.ted.com/>. TED Talks are popular among various audiences and provide an example of data visualization and presentation dissemination. Such formats have the added advantage of giving the topics a human face. Ideas are often diffused through the charisma of a particular person.

Podcasts: An audio presentation can be disseminated as a podcast, a digital audio file that is downloadable via the Internet and is typically episodic, such as a weekly lecture. The mode of delivery differentiates podcasts from other ways of accessing media files over the Internet, such as downloaded or streamed Web casts. New files are downloaded automatically and stored locally on the user's computer or an electronic listening device ready for offline use, giving easy access to episodic content. Organizations and individuals can post podcasts directly to the Web at no cost using podOmatic (www.podomatic.com). The only equipment necessary to make podcasts available is a digital microphone and computer.

The World Health Organization has an international health podcast at:

(<http://www.who.int/mediacentre/multimedia/podcasts/en/index.html>). For example, one episode includes a presentation entitled How Urban Policies Can Make City Living Healthier and Safer. The podcast is a recording of a facilitated panel discussion from April 2010 among key health experts, urban policymakers and administrators. A transcript of the dialogue is also made available online.

Videoconferencing and Webinars: People in different locations can listen to the same presentation or participate in the same meeting from their own computer via videoconferencing and Webinars on the Internet. Holding meetings this way can reduce travel time and costs when participants are from different locations. Attendees participate in the videoconference or Webinar via either a downloaded application on each of the attendees' computers or a Web-based application, the address to which the attendees receive prior to the meeting.

There are a variety of software products available to facilitate videoconferences and Webinars, such as Elluminate *Live!*, Adobe Connect and GoToMeeting. Presentations, seminars and meetings can include real time participation and components can be captured on video for later viewing.

Videoconferencing often includes the following:

- display of slide presentations, typically created through Microsoft PowerPoint;
- live videocast via Webcam or other digital video camera;
- real-time audio communication through the computer via use of headphones or speakers and microphones;
- recording for later viewing, using a unique Web address to post the materials
- an onscreen "whiteboard" allowing the presenter (and in some cases, attendees) to highlight or mark items, or simply to use the whiteboard to make notes;
- text chat for live question and answer sessions; and
- polls and surveys, which allow presenters to conduct questions with multiple choice answers directed to the audience.

Poor connectivity can undermine the quality of the event through delays and intermittent participation. Also, a Webinar does not foster the same kind of informal networking and problem-solving that a face-to-face conference or meeting provides. It is also unlikely to be as effective in gaining input and commitment from participants.

Online discussion forums: Online discussion forums (also commonly referred to as eForums) people contributing through E-mail, often with a moderator keeping the discussion focused. Discussions can be a one-time event or last a couple of days to a few weeks, sometimes with multiple facilitators. Online forums use a linear system, where each discussion contribution appears in chronological order, as a transcript of written

dialogue. The format is easy to read quickly and allows people to respond and maintain a conversational flow. Online discussion forums are a valuable tool for virtual in-depth discussion. However, if a resolution or action points are required, an experienced facilitator may be needed to keep discussion on track.

Listserves: The contemporary digital form of a mailing list, the listserv is a communication tool that connects people via E-mail messages. There is one central E-mail address to which everyone sends messages to the group; from there, the E-mail is sent out to all subscribers. Digests are often available for people who prefer to get one E-mail on a daily or

A Webinar Series: UNICEF's Country-Led M&E Systems

The Country-Led Monitoring and Evaluation Webinar series is part of UNICEF's broader mandate to build national evaluation capacity as well as an enabling environment for evidenced based policy making. The series complements UNICEF's print publications *Country-Led Monitoring and Evaluation Systems*, *Bridging the Gap: The Role of M&E in Evidence-Based Policy Making* and *New Trends in Development Evaluation*, available at: http://www.unicef.org/ceecis/resources_10597.html.



The intended audience for the Webinar series is broad—M&E officers within UNICEF, government counterparts and university-based researchers. The Webinar is perceived as an unrestricted tool by Kseniya Temnenko from UNICEF's office of evaluation in New York, because "people can participate without travelling to a dedicated training or worrying about a meeting budget—they just need a computer and the Internet." People can participate in the event in real-time with the opportunity to see the presenter and ask questions. Alternatively, they can watch a recording of the main presentation after the event or download the presentation slides for an overview (http://www.unicef.org/evaluation/index_51181.html). The different options available for accessing the series provide people with different levels of interest and time with a medium that best suits them. About 100 people typically attend each seminar in real time, and the seminar site gets about 130 visits per month.

This series of Webcasts grew from an internal communication and capacity building strategy. Initially, the target market of M&E capacity building efforts was M&E officers assigned to UNICEF offices around the world; an Intranet was developed to create a community of practice of M&E officers. However, UNICEF staff members were interested in engaging local government counterparts and groups of evaluation professionals. The Intranet platform was launched in 2010 to the broader community with www.mymande.org. This occurred simultaneously and in complement with efforts to build local M&E capacity in-country, through establishing local professional evaluation associations. These components work synergistically—Webinar presenters are recruited through professional associations and the events are promoted through the associations.

An Online Forum: PRB's Ask the Expert/Discuss Online

An example of an online discussion within the field of international public health research is PRB's Ask the Expert/Discuss Online (<http://discuss.prb.org/>). This feature of PRB's Web site gives live online access to experts from PRB and elsewhere to answer questions about noteworthy and newsworthy population, health and environment topics, trends or issues. The online discussions are part of PRB's dissemination and outreach efforts to bring such research and information to a general, non-technical audience. It is also a way to enhance the reach of its publications and other activities, since online discussions often dovetail with newly released PRB publications.

Promotion of these sessions typically begins days in advance, with announcements circulated via listservs that inform people of the session and invite them to submit questions to the experts prior to the session. Then, on the scheduled day, an hour-long question and answer session is held during which the expert responds to previously posted questions, as well as incoming questions. If someone misses the live session, he or she can access the archived transcript afterwards on PRB's Web site. The technical expert is not paid for his or her participation or time. Depending on the interest generated by the topic, the expert may receive up to 30 questions in advance. For example, a session entitled Helping Girls Attain Self-Worth and Self-Sufficiency took place in April 2010 with Wendy Baldwin, vice president and director of the Population Council's Poverty, Gender and Youth program, as the discussant. The archived forum is available at: <http://discuss.prb.org/content/interview/detail/4895/>.

The reach of Discuss Online is extensive. Among 11 sessions held in 2009, first-day page views averaged 2,300 visits, according to PRB.

A Listserv: Daily Digest Listservs for Conference Attendees

For its Fourth International Routine Health Workshop held in Guanajuato, Mexico, the Routine Health Information Network (RHINO) sent daily summaries of each day's activities to its listserv, allowing nearly 1,000 listserv subscribers to receive a daily digest of major take-away messages, and links to presentation slides and photographs. Additional communication technologies used for the event included the following:

- Web site (<http://www.rhinonet.org>)
- Slideshare (<http://www.slideshare.net/routinehealthinfonetwork>)
- Photobucket (<http://s766.photobucket.com/home/routinehealthinfonetwork/index>)
- Youtube (<http://youtube.com/measureevaluation>)

As well as keeping listserv members abreast of the meeting, recording conference proceedings provided an historical record of events for health information system experts and practitioners around the world.



weekly basis with many messages rather than each individual post as it arrives. Listservs are an efficient way to keep in touch, even for people with limited Internet access, as listserv E-mails can be composed or read offline. Unlike postal mailings, listservs send out messages cheaply (no stamps, paper or envelopes are needed) and quickly, and are easy to maintain. The quicker delivery of E-mail, as opposed to postal letters, means dialogue is easier and more natural and information more timely; in contrast, a newsletter sent by stamped mail may have out-dated information by the time it is delivered.

According to USAID's K4Health Project's 2009 Health Information Needs Assessment report, 90% of program professionals surveyed report that E-mail

is the most common medium for communicating with other professionals in different locations. As E-mail is so well established for personal and professional communication, a listserv is an effective tool for communicating with groups with similar interests. A disadvantage is that a talkative group can quickly produce a daunting number of messages and flood inboxes. To avoid this, listservs in a professional context typically have a moderator. Web sites and other online forums can augment a community among users by creating a sign-up function where users can enter their email address and in effect join a listserv to receive any updates.

Communities of practice: A community of practice is group of people who share a concern, a set of problems or a passion about a topic, and who deepen

Gateway for CoPs: Implementing Best Practices Initiative for Reproductive Health

An example of a platform to host communities of practice is the Implementing Best Practices Initiative for Reproductive Health (IBP) Web site (<http://www.ibpinitiative.org>).



Since 2002, the IBP has been exploring how virtual collaboration tools and workspaces can help close the knowledge-to-practice gap among public health professionals working in family planning and reproductive health. IBP was founded by WHO and USAID in collaboration with eight partner organizations. Since then, the partnership has grown to include 32 international reproductive health agencies. The objective of IBP is to improve access to reproductive health through the introduction, adaptation, implementation and scaling-up of best practices (O'Brien & Richey, 2010).

To facilitate achieving this objective, WHO designed a dynamic electronic communication tool to support CoPs, called the IBP Knowledge Gateway. The gateway uses a low-resolution electronic platform that is easily accessible in areas that lack high Internet bandwidth. Membership is free and users can access the gateway through E-mail with direct links to Web-based workspaces that contain a community library, discussion board, announcement board and community calendar. Communication in CoPs within the gateway is asynchronous, allowing members to participate at their convenience. Users can create their own CoPs or join established ones and discuss issues, experiences and lessons learned from their family planning/reproductive health programs. Members also use the gateway to support virtual working groups that use the platform to work collaboratively on a specific activity and to host eForum discussions.

Since its creation in 2004, membership has grown to over 17,850 members from 215 countries and territories, participating in more than 400 CoPs, making it the largest online communication platform in the field of health and development (O'Brien & Richey 2010).

their knowledge and expertise by interacting on an ongoing basis (Wenger, McDemott & Snyder, 2002). Many different platforms, or combinations of platforms, host CoPs. The CoP is composed of the people who participate; the platform (e.g. listserv, workgroup, Intranet) is what enables them to communicate, identify, capture, share and convey the application and creation of knowledge.

Recruiting champions: Information and communication technologies provide a great solution for many communication challenges. However, in some contexts and for specific purposes, an electronic communication platform such as a Web site can never work as well as the influence of a “champion,” that is, someone known and respected in their field. This point is supported by a Cochrane review that documented using ICTs in health professions showed little impact (Gagnon 2009), whereas another review on opinion leaders influencing the use of evidence-based practice in health showed a strong effect (Doumit, 2007).

Engaging opinion leaders to promote change is an approach used to advance a variety of development agendas, both commercial and social. Closely associated with the “diffusion of innovations” model of how innovations spread through social systems or cultures over time, the use of champions is meant to increase the likelihood that an innovation will be adopted as standard practice. Champions can facilitate the speed and ease with which research results are incorporated into policy or clinical practice. A variety of public health efforts already use champions, including USAID’s Health Policy Initiative (<http://www.healthpolicyproject.com>) and the WHO’s Partnership for Maternal, Newborn and Child Health (<http://www.who.int/pmnch/en/>).

4.4 The Classroom

Traditional classroom teaching has many advantages. First of all, people involved in public health research typically have some level of formal education, making the classroom a familiar format. Traditional institutions of learning such as

Champions: FHI’s Network of Champions

In 2006, FHI launched its Network of Champions project in which national advocates worked to improve the status of integrated family planning and HIV/AIDS services in four countries in sub-Saharan Africa (Nigeria, Tanzania, Uganda and Zambia). Four champions working within the reproductive health and HIV/AIDS communities were selected to promote integration in their respective countries and identify and create other champions.

Champions were selected to represent a variety of opinion leaders including local service providers and national-level policy-makers. According to FHI, the champions were most effective when they were already considered to be leaders within their field. However, some high-profile champions were too busy to do all the championing work, some of which was delegated to others. While this seemed to dilute program effectiveness, it also was necessary, according to an evaluation.

Each champion created his or her own work plan, refined in collaboration with FHI. Tasks included conducting trainings, promoting guidelines, holding advocacy meetings and conducting needs assessments. Each champion used a combination of advocacy, training and education to increase support for integrated services. Champions received a stipend to support their advocacy work.

The champions were also encouraged to create an international network so they could discuss and share challenges, lessons learned and best practices. Despite general enthusiasm for this idea, the network was expensive and challenging. Champions did not have enough time to engage with their peers in other countries in a meaningful way, and limited Internet and telephone connectivity were barriers. One champion suggested a dedicated Web site to help share information. Another suggested the projects spend resources on bolstering local networks, rather than developing an international model (Rademacher, 2010).

universities and colleges provide well recognized qualifications, have such facilities as libraries and computer rooms, and offer staff members who are adept at imparting information.

Distance and online learning: Distance learning focuses on the teaching, technology and instructional systems to deliver education to students who are not located in a physical classroom. Rather than attending courses in person, teachers/trainers and students may choose Internet technologies that allow them to communicate on their own time (e.g. E-mail, Web sites) or to communicate in real time (e.g. instant messaging, Web casts). Distance learning is most frequently delivered online. In resource poor and low connectivity settings, delivery mechanisms are provided via CDs, DVDs, flash drives and compilations of readings. AMREF, for example, runs both correspondence (using print materials and the postal service) and eLearning courses to support the African health workforce (<http://www.amref.org>).

Online courses allow education providers to deliver courses to a large number of people at a low cost, if participants already have access to the Internet. Electronic materials can also be easily revised or adapted for different settings. Online courses typically allow students to attend when and where they want, providing a level of convenience, especially for adult professional learners who need to accommodate learning into busy schedules. As with many new information and communication technologies, distance learning does not require traveling, thereby saving resources and reducing disruption to professional schedules. At the same time, many components, such as live video, involve complex technology, a high level of organization, training and expensive equipment. Many components also rely on good Internet connectivity (Maxfield 2004).

Beyond straightforward delivery, the Internet provides a platform for learners to come together in a virtual community (e.g. listservs, Web forums and online discussions) to problem solve in a way that is

integrated into their work life. Ongoing interaction and problem solving with teachers, experts and/or other learners can augment learning and help develop insight into how to apply new knowledge and skills (Trayner, Smith & Bettoni, 1999).

Mobile Technology: The use of mobile phones is increasing across the world and through all segments of society. In addition to making calls, people are increasingly using mobile phones for computing and sharing information (Shank, 2010). As phones cost so little in comparison to personal computers, they facilitate access to information for people who have previously not benefited from access to information on the Internet. Their mobility also means the phone can be taken with health care workers as they make home visits to patients, into the field for data collection and in other contexts that require informed decision making. This has led to mobile applications to affect health outcomes (mHealth) and to facilitate building capacity (mLearning).

In its simplest form, 'mLearning' refers to sending and receiving text messages via mobile phone for the purposes of learning. Other ways to deliver simple mLearning products or messages include sending emails, mobile documents and audio (MP3) files and the use of personal digital assistants (PDAs) or smartphones, devices that receive phone calls, email, documents and mobile Web sites. More complex ways to deliver mLearning products and messages include mobile Web content, which is easy to build and implement; and stand-alone learning modules, which can be more difficult because they have to work with the operating systems of different mobile devices (Shank 2010).

In terms of a learning strategy, mLearning has its own niche. It works best for sending concise key messages (updates, introductory materials, reinforcement of objectives, reminders of key takeaway messages and access to help and support tools) and collaboration and social interaction, rather than providing comprehensive content (Shank 2010).

MEASURE Evaluation's M&E Workshops and Degree Programs



Capacity building is one of the MEASURE Evaluation project's primary objectives, with training as the most visible and measurable strategy. The USAID-funded project runs degree programs and one- to three-week long workshops on M&E, in partnership with universities and training centers. These partners include the Public Health Foundation of India; the University of Pretoria, South Africa; Addis Ababa University, Ethiopia; Instituto Nacional de Salud Pública, (Mexico); and Centre Africain Etudes Supérieures en Gestion, Senegal.

The relationships with the training partners are critical to the sustainability of the capacity building efforts. These partnerships were initially built through existing networks and, more recently, developed through a structured processes. The expected outcomes of the partnerships are to build a cadre of highly trained M&E professionals in developing countries, strengthen the technical and financial capacity of the partners to offer permanent training programs in M&E and strengthen the capacity of partners to become centers of reference for technical assistance and evaluation research in M&E in their regions

For both the degree programs and the workshops, the target participants are mid-level health professionals already involved in M&E activities. As there are always a large number of applicants, participants go through a selection process to meet specific criteria. Content for the training is tailored with the regional partner to suit the context at each site, with local case studies and examples. The training curriculum is developed to serve as a “training of trainers,” so that participants can replicate sessions at their workplace or in their home country, enabling diffusion of technical skills.

Disease-specific activities are also co-hosted with other organizations, such as the Global Fund to Fight AIDS, Tuberculosis and Malaria, United Nations Joint Programme on HIV/AIDS and U.S. Centers for Disease Control and Prevention.

Some of the challenges faced in offering these training programs are the high costs of travel and length of absence from work for participants. MEASURE Evaluation seeks to increase the number of training locations to avoid or reduce travel costs, and is also assisting partner institutions in creating online programs. Another challenge is that people who have completed the trainings often re-enter work environments that do not support their new skills. In response to this, MEASURE Evaluation employs organizational development methodologies to complement training and to create an enabling environment for M&E professionals. Related to this, a further challenge is faculty retention—faculty members who become leaders in M&E training may leave their institutions for better positions elsewhere.

Training programs are promoted through listservs, the partner institutions' own local and regional networks, co-hosting organizations and targeted mailings. More details about MEASURE Evaluation's training activities can be found at <http://www.cpc.unc.edu/measure/training>.

In Uganda: Building Health Workers Skill Base

The AED-SATELLIFE project (<http://www.healthnet.org/ict>) has been a pioneer in promoting the use of information technology for better health in low-resource environments. The project facilitates the implementation of mobile computing devices such as handheld devices known as personal digital assistants (PDAs) and mobile phones in different settings for information dissemination and data collection. These new technologies put health and medical information in the hands of health workers in environments where electricity, telephone lines and books are not readily available, and the Internet is years away.

One of their key projects is to provide continuing medical education for health workers, including doctors, senior nurses, clinical officers and community health workers. These health workers already have PDA devices for health management information system data collection and accessing clinical information (called the Ugandan Health Information Network or UHIN). Continuing education messages pertaining to diagnosis, treatment and prevention of major health problems such as diarrhea, pneumonia, malaria HIV/AIDS and tuberculosis are broadcast three times a week via PDAs. In addition, health workers receive daily news from mainstream media through the network. A cost-effectiveness study of UHIN conducted by independent consultants in 2004-2005 showed that the network delivered a 24 percent savings per unit of spending over the traditional manual data collection and transmission approaches.

UHIN is a joint project of AED-SATELLIFE, Uganda Chartered HealthNet; the Faculty of Medicine of Makerere University; the International Development Research Centre, Canada; and District Health Services of five districts serving 1 million people in Uganda.

Global Health Learning Initiative

An example of online learning is USAID's Global Health eLearning Center at (<http://www.globalhealthlearning.org>). This center offers more than 40 courses covering a variety of technical and topical areas relevant to the global health workforce. The center was established after repeated requests from USAID field staff for access to up-to-date technical and programmatic guidance. Although USAID field staff were the intended audience, there is a large secondary audience of health professionals around the world who are accessing these courses. There are more than 67,000 registered learners.

Each course is highly focused and can be completed at the learner's convenience in one to two hours. The courses combine technical content with program principles, best practices and case studies. They are intended to provide concrete examples and to stimulate learner's thinking about application of the principles for problem solving in the field.

Each course is authored by an expert or a team of experts and, takes about six months of dedicated staff time to complete the development and technical review of the course. Traditionally, topical experts have approached USAID to develop specific online courses; however, USAID may recruit authors to fill gaps in what is offered. Individual courses are promoted through various topical listservs and authors promote their courses through their networks, listservs and conferences. There are also plans to promote the site as a general health resource.

Chapter 5: Conclusions

A successful KM strategy in international public health research can bridge the gap between knowledge and practice by facilitating “evidence-based decision making” and by putting knowledge in the hands of its potential users in a useful format. For this reason, a KM strategy is an essential component of every research project.

In this paper, we have reviewed a variety of platforms for international public health research, all of which are components of larger KM strategies. Our review is confined to platforms directed to policy-makers, researchers and program managers for the purposes of sharing knowledge, promoting data use and building skills. What our review reveals is that each platform needs to be part of a strategy that meets the needs of a particular audience. Although many of the platforms can be accessed globally, the ones that work best respond to clearly defined local needs and information receiving preferences. Additionally, knowledge management works best when it is designed around a common purpose—a problem to be solved or a goal to be achieved.

Just like any behavior change communication, messages need to be reinforced. This can be done through complementary communications platforms and encouraging social reinforcement through follow-up or fostering, promoting and maintaining communities of practice. Each platform reviewed is a tool for communities and society as a whole to engage and communicate. People determine the success and utility of a tool by sharing and exchanging information and lessons learned which enhance the learning experience.

Glossary

Andragogical model	This model clarifies the difference between adult and child learning styles. One of the key points is that adult learning has to meet a perceived real-life need. Therefore, new knowledge or information should be presented as a solution to a clearly defined problem, with benefits clearly articulated.
Blogs	A series of online entries written and displayed in chronological order. Blogs typically provide commentary or news on a particular subject, such as politics or news. A typical blog combines text, images and links to other blogs, Web pages and other media related to its topic.
Bloom's taxonomy of learning	Bloom's taxonomy (Bloom, 1956) is a classification of learning objectives within education. It refers to a classification of the different objectives that educators set for students (learning objectives), dividing educational objectives into three domains: cognitive, affective and psychomotor. Within the taxonomy, learning at the higher levels is dependent on having attained prerequisite knowledge and skills at lower levels. A goal of the taxonomy is to motivate educators to focus on all three domains, creating a more holistic form of education.
Capacity building	Capacity building is the process through which individuals, organizations or societies obtain, strengthen and maintain their capabilities to set and achieve their own objectives over time.
Champion	A champion is a charismatic advocate of a belief, practice, program, policy or technology. Unlike an opinion leader, a champion is not necessarily an expert or leader in his or her field.
Community of practice (CoP)	A CoP is a group of people who share a concern, a set of problems or a passion about a topic, and who deepen their knowledge and expertise by interacting on an ongoing basis (Wenger, McDemott & Snyder, 2002).
Constructivism theory	This is the theory that people generate knowledge and meaning from their experiences.
Diffusion of innovation	Diffusion is the spread and adoption of new information, ideas, beliefs, or social norms capable of influencing family planning decisions and behaviors that occurs through social interaction and influence, either at the interpersonal level or through impersonal channels such as the mass media.
Distance learning or eLearning	Distance learning (eLearning) focuses on the teaching, technology and instructional systems designs that aim to deliver education to students who do not gather in a physical classroom. Older models of distance education use regular mail to send and retrieve written material, videos, audiotapes and CD-ROMs or other media storage format. More recent models make use of E-mail, the Web and video conferencing over broadband network connections for both wired physical locations and wireless mobile learning.

Explicit knowledge	Knowledge that has been codified and can be expressed in symbols and is communicated with other people is called explicit knowledge. Examples include written reports and books (see also “tacit knowledge” below).
Information communication technology (ICT)	ICT is an umbrella term that includes any electronic communication device or application. It includes radio, television, telephones, personal computers and network hardware and software, and satellite systems, as well as various services and applications associated with these, such as videoconferencing and distance learning.
Instant messaging (IM)	Instant messaging is simultaneous communication by people who are online at the same time, typing messages to each other. Instant messages are exchanged privately or publicly via online Web platforms accessed by computers and mobile devices.
Knowledge	In the context of this paper, knowledge refers to expertise and skills acquired by a person through experience or education.
Knowledge management (KM)	Knowledge management refers to a range of practices used in or among organizations to identify, create, represent, distribute and enable adoption of insights and experiences.
Knowledge translation	Knowledge translation is a communications-driven process that transforms research findings into action through a set of interactions. These can include synthesizing research findings, developing actionable messages, improving practitioner awareness and adapting and reporting findings to multiple audiences and contexts.
Legitimate peripheral participation (LPP)	LPP is the process by which an individual enters a community of professionals and moves from the periphery to a fully participating member of the community. Learning takes place in the movement from observer to participant.
Listserv	Also known as an E-mail list, a listserv connects a community of people via E-mail messages. There is one central address to which everyone sends messages to the group, and from there the E-mail is sent to all subscribers of the listserv.
mHealth	mHealth is the use of mobile technology to support health outcomes.
mLearning	mLearning is the transmission of learning messages through mobile phones or personal digital assistants (PDAs).
Online discussion forum (also referred to as eForums)	An eForum is an online text-based discussion, usually active for a specific period. The discussion may be a one-time event or last a couple of days to a few weeks, and can have multiple moderators. An online forum uses a linear system; each topic is discussed in a given heading and arrives to the user in chronological order.

Opinion leader	An opinion leader is an expert or peer within a network that frequently influences others' attitudes or behaviors in informal ways.
Open access	Open access refers to software or media that are available via the Web free of charge.
Platform	A platform is a place or electronic site designed for participant interaction.
Podcast	A podcast is a digital audio or video file that is episodic and is downloadable through Web feeds.
Portal	A portal is a Web site that acts as a gateway to other sites, usually organized by content-specific categories.
RSS feed (really simple syndication)	RSS is a family of Web feed standard formats used to publish frequently updated works (text, audio or video), such as blog entries or news. An RSS document (called a feed, Web feed or channel) may include full or summarized text, plus metadata such as publishing dates and authorship.
Situated learning theory	This is a theory that suggests learning is unintentional and occurs within authentic activities, contexts and culture.
Skill	In the context of this paper, skill refers to an ability that has been learned through training, and is used to achieve results.
Social practice theory of learning	This is the theory that people learn new behavior through observational learning of the social factors in their environment. If people observe positive, desired outcomes in the observed behavior, then they are more likely to model, imitate and adopt the behavior.
Tacit knowledge	Tacit knowledge is personal knowledge embedded within an individual's experiences and involves intangible factors, such as personal beliefs and perspectives. According to the online dictionary Wikipedia, this refers to knowledge that is "difficult to transfer to another person by means of writing it down or verbalizing it." The online BusinessDictionary defines it as "the unwritten, unspoken and hidden storehouse of knowledge held by practically every normal human being, based on his or her emotions, experiences, insights, intuition, observations and internalized information." (Compare with "explicit knowledge" above.).
Technical assistance	Technical assistance is professional or management advice or training provided by specialists.
Web 2.0	Web 2.0, the version of the World Wide Web that took effect in 2004, is associated with Web applications that facilitate interactive information sharing, user-centered design/involvement, and collaboration on the Internet.

- Web conferencing** A Web conference (e.g., via Elluminate *Live!* or Adobe Connect) allows conference participants to communicate with each other through the Internet using computers, such as their personal computer at home or work. This can be accomplished using either a downloaded application on each of the attendees' computers or a Web-based application where attendees simply enter a Web site meeting address.
- Webinar/Webcast/Audiocast** A Webinar, Webcast or audiocast is transmission of linear audio or video content over the Internet. A Webinar, Webcast or audiocast is a type of Web conference, although the direction of the presentation more often than not is primarily one way, from the presenter to an audience.
- Web site** A Web site is a collection of Web pages, images, videos or other digital assets that is hosted on one or several Web servers, usually accessible via the Internet, cell phone or a local area network (LAN). A Web page is a document, typically written in HTML (hypertext markup language), that is typically accessible via HTTP (hypertext transfer protocol), which transfers information from the Web server to display in the user's Web browser.

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