Digital Public Health

Technology Opportunity Assessment

Prepared for the Merck for Mothers Program
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Digital public health

Summary

Advances in technology are providing new ways to educate, inform, and reach out to people to encourage healthy behaviors. Educational videos, which are now easier and less expensive to create and disseminate, are one exciting tool, particularly in low-resource settings. Video is immediately engaging, can reach many people quickly, and does not require literacy. Digital Green, an India-based nonprofit, has developed and successfully implemented a participatory “community video” approach to help farmers learn new agricultural techniques. A proposed effort, Digital Public Health, will seek to adapt and pilot this novel method to support public health goals.

Statement of need

Behavior change communication encourages individuals, health workers, leaders, and communities to adopt healthy behaviors and priorities, such as supporting women’s health and nutrition during pregnancy and breastfeeding, emphasizing newborn care, and providing better nutrition and routine immunizations for infants and young children.

Traditional behavior change communication includes in-person outreach and counseling; targeted, culturally relevant print materials; and media campaigns. Although these efforts are often successful, their impact can be limited in low-resource settings by staffing, resource shortages, and low literacy.

Now, advances in technology and the popularity and widespread use of mobile devices (for example, smartphones) are allowing health groups to overcome these barriers and broaden the reach and impact of their materials.

One example is the use of educational video. Video is recognized as a powerful tool for behavior change because it is engaging and expressive, can address sensitive topics with nuance, and reaches people who have difficulty reading. Until recently, it has not been widely accessible or feasible in low-resource settings. Now, however, it is possible to make educational videos available for viewers using low-cost cell phones or portable video projectors. This has the potential to bring potentially lifesaving health information, education, and messaging directly into the homes of the people and communities who can benefit the most.

Videos can encourage people to change their behaviors significantly. Producing targeted, low-cost educational videos and making them more widely available has the potential to provide an effective new avenue for behavior change communication.
Technology solutions landscape

Community video approach: Digital Green

One way to harness video for behavior change communication is to use a “community video” approach. Following this approach, both the delivery and the creation of content are handled by members of the community with support and guidance from a “central” organization or group of organizations. Programs that incorporate community video are structured to ensure that the messaging meets programmatic goals and to include built-in mechanisms for quality control and reporting. In addition, advances in consumer digital video technology have made production inexpensive, so community video is a low-cost intervention.

Digital Green, an India-based nonprofit, has developed a successful community video model for agricultural education. Digital Green is dedicated to improving the social, economic, and environmental sustainability of small farmer livelihoods. It began as a project at Microsoft Research India that focused on using facilitated video instruction to encourage farmers to adopt better agricultural practices. Digital Green uses a participatory, community-driven approach. The group creates videos in collaboration with local communities that show local farmers implementing a particular technique, such as building a compost pit. These videos are then displayed in villages in public showings in the evening by facilitators who explain the techniques and encourage adoption. The unique components of the Digital Green model are:

• A participatory process for content production.
• A locally generated digital video database.
• Human-mediated instruction for dissemination and training.
• A regimented sequencing of steps to support introduction to new communities.

Unlike systems that expect information or communication technology alone to deliver useful knowledge to communities, Digital Green works with existing, people-based extension systems, amplifying their effectiveness. Farmers who were part of the program have adopted more effective agricultural practices. As of 2012, Digital Green has expanded to 1,000 villages and produced over 2,000 videos, with a much larger expansion planned through integration with the India Rural Livelihood Mission. New projects are also planned for Ethiopia and other countries in Africa.

Community video for global health

Harnessing this revolutionary approach to encourage healthy behaviors is a natural next step for global health efforts. For example, discussions between health providers and clients are often a “missed opportunity” to encourage healthy behaviors at the home and community level. Video-based education could empower health care workers to take advantage of these opportunities as a way to provide accurate, key messages. In addition, linking mobile phone capabilities (including not only video but a plethora of additional options) with efforts to improve maternal and newborn health is gaining significant momentum.
as the world strives to achieve the Millennium Development Goals. This was recently demonstrated in May 2011 when Senator Hillary Clinton launched a US Government initiative called the Mobile Alliance for Maternal Action (MAMA) Project. The declining cost of mobile phones with video capability has only recently made these kinds of interventions possible.

Based on this potential, and drawing from Digital Green’s successful model, PATH proposes a Digital Public Health platform which will use community-led, culturally appropriate video to demonstrate globally informed health interventions to health care workers and clients during household visits and community gatherings. Because this platform will have many similarities to the program Digital Green has developed for agricultural education, the components are presented side by side in Table 1.

Table 1. Comparison of Digital Green and Digital Public Health program components.

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<th>Digital Green</th>
<th>Digital Public Health</th>
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<td><strong>Program Structure</strong></td>
<td>Field-based organizations identify community members to serve as agricultural educators who deliver educational messages and training to community groups.</td>
<td>Community health workers in public health or nongovernmental organization programs will deliver health education messages and trainings in programmatic areas.</td>
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<td><strong>Message Development</strong></td>
<td>A common set of agricultural practices (such as building a compost pit) are developed by agricultural experts. These are identified by field-based organizations as being locally relevant.</td>
<td>Health messaging developed by area experts will be adapted for field organizations and reviewed by appropriate governing bodies.</td>
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<td><strong>Content Creation</strong></td>
<td>Storyboards for messages are developed by the field organization and then community members are filmed in the video.</td>
<td>Storyboards for messages are developed by the field organization and reviewed by content experts, and then community members are filmed in the videos. Some sensitive material may be presented as still pictures or art work.</td>
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<td><strong>Content Delivery</strong></td>
<td>Agricultural educators show videos to groups and engage in a discussion around the video. The common method for showing the videos is with a portable video projector.</td>
<td>Community health workers will use videos in group showings and on household visits. Both video projectors and handheld devices will be used for video replay.</td>
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<td><strong>Content Management</strong></td>
<td>Videos will be stored in a central repository, and content will be transmitted by various mechanisms including Internet and DVDs. Videos are available through YouTube.</td>
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<td><strong>Quality Control</strong></td>
<td>Videos are reviewed through multiple levels for accuracy and quality before they are screened in the field.</td>
<td>Videos will need multiple levels of review, both for general content and presentation and to provide quality assurance around message accuracy.</td>
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<td><strong>Reporting</strong></td>
<td>Details of video screenings and farmers’ adoption of practices are recorded, and this information is compiled and sent to the central organization for program evaluation.</td>
<td>Details of screenings will be reported. Behavior change and health outcome indicators will be used to measure impact; this is one area where health education differs from agricultural education.</td>
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The deployment costs of community video education are low because of a dramatic drop in the price of consumer video technologies. Digital Green uses US$100 video cameras and free personal computer
video editing software to create videos. The group disseminates these videos into the community using portable video projectors, which cost about $300. Another option for showing video is to use portable devices such as mobile phones, which are available for $75 to $150 each.

Gap analysis

The evidence from Digital Green suggests that community video is a cost-effective tool for agricultural education and livelihood topics. The basic technology components of community video have been worked out by Digital Green and will apply equally well for health education, but there are areas where more information is needed or the approach will need to be adapted for the health context:\(^3\):

- For some health topics, it will be necessary to develop national guidelines on best practices that will be the subject of the videos.
- The sensitivity of some topics, such as breastfeeding, may restrict the recording or showing of content.
- Additional permissions may be needed to record people discussing some topics, and there may be a greater need to protect their privacy.

Videos will need extra levels of review to ensure that messages are accurate, regulatory requirements are met, and that they are in compliance with guidelines. It will also be necessary to ensure that videos remain in compliance with national and international guidelines. When guidelines change, videos may need to be updated or decommissioned.

One of the most important components of the Digital Green model is having facilitators present the videos to groups of farmers who have a clear interest in sharing educational practices. The participants have incentives to attend and to be engaged in the discussion. For the model to be successful in health education, similar structures will need to be established. Some existing health programs have established organizations, such as mothers’ groups, that might provide an ideal participant base. Alternate viewing models that use existing home-based support programs may be another option.

Evaluation studies of the use of community video are needed to determine how well the model can be adapted for health education. These studies will need to focus on the impact of localized messaging and determine whether the use of the video leads to improved understanding of the messages and impacts personal behavior.

The intent of Digital Public Health is to strengthen the educational capabilities of community-based health programs. A “market assessment” for Digital Public Health will take existing community programs as the target, which is a large number when one considers public health programs with community health workers; for example, India has 750,000 accredited social health activists, and Ethiopia has 34,000 health extension workers.
Investment opportunity

Digital Public Health is a platform that can be used to support community-based behavior change communication across a broad range of health topics, including maternal and child health. Core investment is to (1) develop and disseminate the methodology to health programs and (2) provide centralized services to support these health programs, including message development, quality control, and content management.

Initially, the Digital Public Health effort will begin small-scale deployments within existing health programs to develop and use the methodology and then to rigorously measure the impact of these efforts. Although the work done by Digital Green provides an excellent model for the use of community video, recognized differences in the agricultural and health domains may require modifications to the techniques used to create and share videos. Prior to a large-scale expansion of Digital Public Health, it is necessary to conduct studies on the efficacy of video for health messaging. Measurements of impact could include:

- The number of health topics selected.
- The level of engagement from the community.
- An assessment of the transfer of technical skills.
- An assessment of the storyboard process and the number of videos produced.
- Uptake and video dissemination over time.
- The number of community members reached.
- Perceptions of video messaging by the field organization and community.
- Impact on the field organization’s role in the community.
- Impact on staffing and time.
- Changes in participant comprehension and retention of information on health topics.
- Reported changes in practices and sustained video usage.

Importantly, one of Digital Green’s key successes has been its ability to demonstrate the cost-effectiveness of the intervention.

The strategy for effectively expanding Digital Public Health is to leverage existing community-based support programs by helping them to include the methodology into their current approach. These programs may include local nongovernmental organization projects, larger donor-funded projects, and governmental health programs. To achieve the most sustainable impact, it is important to integrate this effort with governmental programs. For example, in India it would be desirable to work with the National Rural Health Mission and the National Rural Livelihood Mission to support accredited social health activists and Anganwadi workers in using video for health education. In Ethiopia, national health extension workers could use community video.

Centralized support for Digital Public Health will require an organization (or organizations) to manage and provide quality control for the health content in the programs and to support the deployment
organizations as they bring the videos to the field. An important role for central organizations with health expertise is in managing and developing the messaging and in interfacing with government and regulatory organizations. The organizations should also critically review video materials to ensure alignment with local guidelines before dissemination. In addition, support organizations would provide technical expertise to standardize training provided to other organizations in video methodology and relevant technologies.

Multi-country expansion of Digital Public Health could have many configurations of partnering organizations; in India, Digital Green would be an appropriate partner; in Africa, a partnership with a national or local partner might be more appropriate. A successful Digital Public Health model will require integrated expertise in health, technologies, and community-based support.

To summarize, if the Merck for Mothers program or another donor were to make an investment in Digital Public Health to establish a broad intervention, the key steps would be:

- Begin initial small-scale deployments inside existing community-facing programs to develop the methodology.
- Conduct field studies of Digital Public Health to measure the efficacy of video messaging and its cost-effectiveness.
- If effective, scale the program through nongovernmental organizations and government programs such as the National Rural Health Mission in India.
- Establish central support organization(s) to develop messaging and provide a critical review of videos and to support Digital Public Health through training and technology development.
References

