

# Health Education in Rural Communities with Locally Produced and Locally Relevant Multimedia Content

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## ABSTRACT

Health education in rural communities is one of the main ways in which developing countries are addressing prevalent health issues like maternal and child mortality, HIV/Aids, tuberculosis (TB) and malaria. In many rural villages, Community Health Workers (CHWs) act as proxies through which health education information is spread in their communities. In this paper, we discuss important principles to consider when designing solutions for creating and distributing digital health content in rural communities, based on previous work in the area of health education and the training of CHWs. We then introduce our model of content creation and distribution, which involves providing tools that allow rural health professionals to independently create health content from within their local communities. We also present the lessons learned from our deployment of this model in Lesotho - highlighting the opportunities presented by the use of locally produced hence locally relevant digital content in health education.

## Categories and Subject Descriptors

H.5.1 [Information Systems]: Multimedia Information Systems – audio input/output, video

## General Terms

Design, Human Factors

## Keywords

ICT4CHW, health education, low-literacy, multimedia

## 1. INTRODUCTION

The increased widespread of mobile phones into even the poorest of African communities provides a platform for delivering health education in such communities on mobile platforms. A number of projects have been implemented in different developing regions to use ICTs to create and disseminate health information. Below are some of the lessons learned from these projects:

- **Locally Relevant Content:** Different communities are faced with unique health challenges, and it is when health education information is relevant for addressing the unique community challenges that it has the potential to cause a change in behaviour and attitude [1,6].

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- **Accessibility of Content - Literacy:** Most people living in rural communities are textually illiterate. Therefore, in working towards providing relevant and useful health information in such communities, two important factors regarding the presentation of content need to be considered: the language in which content is communicated and the format in which it is presented. Previous research in ICT4D has shown the effectiveness of delivering training content to low literate populations in non-textual formats (voice, images, video) and in the people's local languages [5,8].
- **Affordability of Access to Content:** Three quarters of the 1.1 billion people living on less than \$1 a day live in rural areas, and in designing education technologies for rural areas, cost of access needs to be considered carefully. Many solutions that target information dissemination in low-income communities use Bluetooth because it is free [4], while some use situated displays to provide content to members of the community at a common centre that is accessible to all [3].
- **Design to Fit Existing Community Eco-systems:** Communities have cultures, structures, and traditions. In these structures exist esteemed and trusted members of society (like chiefs, doctors, and teachers). When deploying a health education solution in a rural community, these structures need to be observed and harnessed to appropriate the new technology and encourage adoption of the technology. Where training programs already exist, it is important that ICTs be used to support the existing programs, not to replace existing structures [2].

## 2. “LOCALLY PRODUCED CONTENT”

Based on the principles mentioned above, which were learned from related work, we designed a model of health education content creation and distribution wherein professionals who serve the rural community produce the content themselves. To develop this model we worked with nursing sisters of Emmaus Health Centre (EHC), in Lesotho. EHC is a rural health facility that serves a network of over ten villages. In order to support the health needs of the many villages that surround EHC, 35 CHWs are trained to provide basic healthcare and counseling in their respective communities. CHWs are trained on a monthly basis by the professionally educated nursing sisters, after which they (CHWs) have the responsibility to spread the health information in their communities. In our meetings with the nursing sisters, they emphasized that their primary challenge is that some information is not passed on accurately to the communities because of the CHWs' low levels of literacy and associated forgetfulness. As a response to this challenge, we developed an application that seeks to improve the process of information transfer by the use of mobile video.

The application basically allows a trainer (e.g., a nursing sister) to load images and record descriptive voice, after which the voice and images are combined into video that is formatted to play on mobile phones (.mp4 format). At the time of writing, this application had been deployed for five months in the community, being used by the nurses to create educational videos on the topics that they found most relevant to the needs of the people they serve. Videos that were created in this period discuss issues such as “Tuberculosis,” “Adhering to HIV Anti-Retroviral (ARV) Treatment”, “First Aid in the community”, “Immunization in children”, and “Love, Sex and Fidelity”. Over the first five months of the pilot, when the CHWs visited the health centre for their monthly training, they would receive new videos created by the nurses, transferred to their phones via Bluetooth.

We discuss below the lessons learned in this deployment period.

- **Locally Produced Content:** Our model of promoting locally relevant content includes empowering a local health professional to create the content from within the community. Since local nurses train CHWs and counsel patients on a daily basis, they are able to communicate most relevant content in the simplest manner, in the language that people in the community would understand.
- **Trust and Credibility of Content:** In one of the videos that was created, the chief nursing sister used a picture of herself for the introduction page to her “lesson”, i.e., when the video started, her picture, dressed in her health apparel, showed as she spoke the Sesotho equivalent of the words: “*In this video, I am going to teach about the importance of adhering to ARV treatment...*” This picture added credibility to the content, from the people’s point of view. One of the CHWs mentioned that when her patients saw the video, they recognized the face and the voice of the nurse (she is the chief nurse who is known and respected for her health expertise).
- **Audio-visual Presentation Promoting Behaviour Change and Responsiveness:** Due to stigma within communities, many people in Lesotho refuse to get tested for HIV/Aids and TB and throw away any HIV/Aids and TB medication. One of the CHWs mentioned that she played a video on TB to one of her patients who had been showing symptoms of TB but refusing to test. In seeing a picture in the video of a person breathing out germs, he feared that he would be infecting his children as he coughed. After seeing the video, the man called the health centre with questions about TB and finally went in for a TB test. This reaction was promoted by the presence of the picture showing a person coughing germs into the air.
- **Content Mobility and Sharing:** Videos made available on mobile phones gives an important dimension of “content mobility”. The information is no longer available only at the health centre or at the community centre, but in homes, in the streets, and in the fields. In a rural context, sharing means more than just transferring content from one device to another via Bluetooth or otherwise, but it means “coming together to consume content together”. Women sit together when they go to fetch water at community taps or streams, women go in groups to do laundry and to gather firewood, men sit together by the kraals and at drinking spots. So in the end, because of the strong sense of community, information is shared to even those who do not have mobile phones of their own.
- **“The Third person”:** CHWs mention that there are issues that they are generally uncomfortable talking about in their villages (especially issues of sexuality), even though they are important

to address. However, as was pointed out in [8], multimedia becomes the third person in the conversation between the CHW and the person watching the content. Recorded multimedia gets to do the talking which the CHW may be uncomfortable doing.

- **Interest, Pride, and Appropriation:** In the fourth month after the beginning of the pilot study, the CHWs started making requests to the nurses about what content to create for them in the months to come. This is another benefit of locally created content – it is easier for the CHWs, who are the ones who spend the most time in the villages, to request for content that will directly address the issues they face on a daily basis. Moreover, the videos bring an element of pride among the CHWs, they say that the videos make them appear more important in the community.

### 3. CONCLUSION

We have presented our work on promoting the creation of mobile phone videos from within rural communities for the purpose of community health education. We discussed, based on literature, principles that are worth considering when deploying health education projects in rural communities. We then introduced the software we built to incorporate these principles while also supporting the creation of health education content within the community, created by the most knowledgeable, trusted, and respected health professionals in the community. We conclude from our discussion that health education using locally created content has the potential to address specific health issues within different communities.

### 4. REFERENCES

1. Agarwal, S.K., Kumar, A., Nanavati, A.A., and Rajput, N. Content creation and dissemination by-and-for users in rural areas. *2009 International Conference on Information and Communication Technologies and Development (ICTD)*, IEEE (2009), 56–65.
2. Chowdhury, A. The potential of moving pictures: Does participatory video enable learning for local innovation? *Innovation and Sustainable Development in Agriculture and Food*, (2010).
3. Fröhlich, D.M., Jones, M., and Park, S. Democracy, Design and Development in Community Content Creation : Lessons From the StoryBank Project. *Information Technologies and International Development* 5, 4 (2009), 19–35.
4. Maunder, A., Marsden, G., and Harper, R. Creating and sharing multi-media packages using large situated public displays and mobile phones. *Proceedings of the 9th international conference on Human computer interaction with mobile devices and services - MobileHCI '07*, ACM Press (2007), 222–225.
5. Ramachandran, D., Canny, J., Das, P.D., and Cutrell, E. Mobile-izing health workers in rural India. *Proceedings of the 28th international conference on Human factors in computing systems - CHI '10*, ACM Press (2010), 1889.
6. Schmidt, C., Gorman, T.J., Gary, M.S., and Baylor, A.A. Impact of Low-Cost, On-Demand Information Access in a Remote Ghanaian Village. *International Conference on Information and Communication Technologies and Development*, (2010).
7. Treatman, D. and Lesh, N. Strengthening Community Health Systems with Localized Multimedia. *Proceedings of M4D 2012*, February (2012).