Information Technology to Empower Farmer Action on Sustainable Agriculture and Food Security

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Opinion

How can we build the capacity of people in rural communities to achieve sustainable agriculture and food security? This is one of the key questions addressed in the United Nations' Sustainable Development Goals (SDGs). Their second goal after no poverty is to "end hunger, achieve food security and improved nutrition and promote sustainable agriculture", which is important for rural communities. Equitable quality education and lifelong learning, which is another SDG, is key to achieving these goals. Achieving sustainable agriculture and food security is predicated on fostering an attitude of caring for the land and people through knowledge, reflection and dialogue [1].

Improving the quality of life-long learning opportunities for sustainable agriculture and food security requires information technology to overcome distances to reach remote and rural communities around the globe. Geography is not the only barrier - technology access is limited by poverty. Using simple technologies of radio and video, Farm Radio International (FRI) and participatory video (PV) successfully overcame the obstacle of geographic distance through technology accessible and affordable to the poor. These rich opportunities for lifelong learning can be created in an interactive way where community people's voices are heard.

Farm Radio International (FRI) is a not-for-profit partnership of broadcasters in African countries created to fight poverty and food insecurity that started in Canada in 1945. The early broadcast initiatives of Farm Radio included instructional programs and rural development stories that targeted Canada's isolated communities and included phone-in forums that allowed two-way communication [2]. This approach spread to radio networks in Africa in 1979 after the Canada Broadcasting Corporations' Dr. George Atkins noted the mismatch of farm radio programming there that focused on expensive equipment and inputs despite these being unaffordable to the mass of small farmers. These farmers wanted simple farming techniques to improve their yields, such as how to fertilize their crops with animal manure or compost, or how to raise oxen.

To help reduce vulnerability to hunger, malnutrition and poverty through growing more and better food, low-cost sustainable farming practices were shared through the most widespread technology available to the poor, the radio. Farm Radio International (FRI) initially only provided free scripts to local stations with the only feedback being a questionnaire. Although these scripts could be adapted to the local situation the broadcasting was limited to a one-dimensional scattershot approach, without a lot of opportunity for interaction, local input and dialogue.

Dialogue on sustainable farming required that FRI build the capacity of developing country broadcasters, which FRI did through on-the-job broadcaster training and creating "active listening communities", whereby farmers develop the radio content. To get the farmers input, broadcasters were sent out to a village with a mobile phone, to collect stories. As well, farmers were invited to phone into create programs and eliminated any cost or cell charges to the farmers. Farmer uptake of agricultural improvements was found to be four times higher in active learning communities compared to farmers in passive listening communities, which was ten times that of control communities that did not receive FRI broadcasts. In 2017, FRI resource packs with ideas and scripts, as well as training documents for broadcasters on a variety of agricultural and rural development topics were provided to 600 radio stations and 1,500 individual broadcasters in Africa reaching 20 million farmers.

Video is another technology that is readily accessible to the poor, although radio is undoubtedly still the most widespread technology to rural communities and the most readily accessible to poor people. The accessibility and cost-effectiveness of uploading video from cell phone cameras or video recording devices to free video sharing websites, such as YouTube, has made film a popular medium to foster rural development and

education. With ready access to video recorders through cell phones as well as accessible sharing platforms, film-making and distribution is no longer only for the elite but has become accessible to the poor. As seeing is believing, films are a great vehicle to promote understanding and instigate social change through training, educating and empowering remote and rural people.

The work on video for social change, also called participatory video, is rooted in the Canadian legacy of film-making that started in 1967 to empower remote and rural people. The first experiments in participatory video were pioneered by Don Snowden in a small fishing community in Fogo Island, Newfoundland. The Islanders realized by watching films created by other Island villages that they shared many of the same problems and together could use these films to inform and lobby far-away governments. Decision makers who had never traveled to the area were able to gain insight into the situation confronting the Islanders, which led to improved government policies and actions for the Islanders. These films substantiated that rural poverty arose not from the lack of economic opportunities but from the inability to access information, lack of confidence, and a lack of organization [2]. These films built the awareness and self-confidence of the people living in remote and rural island about their development needs. This project led to participatory video being used internationally to promote dialogue and social change. The techniques developed by Snowden became known as the Fogo process, which is still used all over the world.

Participatory video techniques provide an effective community engagement model to involve a group or community in telling their own story. The methods and techniques of participatory video require local participants to dialogue about their local issues. A key aspect of participatory video is that local people are considered subject matter experts capable of defining their own video story. The local expertise in traditional ecological knowledge and local cultural expression come out in the videos, to heighten the value of local knowledge and build bridges between communities and decision-makers. As a result, individuals may gain more control over decisions impacting their lives.

Participatory video encourages learning by offering a direct experience for participants engaged in the process and a mediated experience for those who are not engaged directly in the process of developing the film. The film is both a process and a product, which can be used for advocacy, policy lobbying, education, and enabling social learning in local rural development. Participatory video has the ability to shift power relations creating space for transformation and learning.

As most people are largely visual learners, people are able to engage and respond to these video stories of real people having real issues. Chowdhury et al. [1] reported participatory video to be an effective tool for enhancing farmer's knowledge and skills of sustainable agricultural practices. As well, Thompson et al. [3] found that participatory video could propel community development, promote programming with funders to increase resources to focus on food security and create dialogue about sustainable food production. Harvesting Hope in Northern Manitoba [4], Meec him Farm [5] and High School–Then What? Education in Wasagamack [6] were all films done under local direction and with community voices exploring local issues and call for social change around food security, sustainable agriculture and post-secondary education.

Clearly accessible communication tools that engage local people in their own inquiry can help on the ground with many sustainable development goals including food security, quality life-long learning and sustainable agriculture. Communication technologies, such as radio and participatory video, provides multidimensional flow of information between not only individuals in rural populations but also government policy makers to help them realize and resolve common challenges. Through interactive film, as had been the experience with radio, community members were empowered to move cooperatively toward development goals. These interactive learning technologies hold great promise to further foster dialogue and significant change to meet the sustainable development goals of sustainable agriculture and food security at both the community and policy level.

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