AgShare: Building Community and Content with Multiple Partners

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Abstract

Michigan State University and OER Africa are creating a win-win collaboration of existing organizations for African publishing, localizing, and sharing of teaching and learning materials that fill critical resource gaps in African MSc agriculture curriculum. By the end of the 18-month planning and pilot initiative, African agriculture universities, faculty, students, researchers, NGO leaders, extension staff, and farmers will participate in building AgShare by demonstrating its benefits and outcomes and by building momentum and support for growth.

Keywords

Open Educational Resources, Africa, Agriculture, Curriculum, Higher Education

Background

Africa requires bold and innovative agricultural development to help the continent's smallholder farming families move out of poverty and hunger. To do so, farming must change from low-skill manual labor intensive industry to farming as a knowledge-intensive networked sector (World Bank, 2007). For those of us responsible for the advancement of higher education, the challenge is to build research, training, and outreach programs that can respond to the demands for innovation in the "new agriculture."

Graduates of African Masters of Science (MSc) programs in agriculture are potentially major change agents for African agriculture. They can become the brightest future leaders in industry, government, and academia and be positioned to implement impactful change that will directly and positively affect small farmers and rural communities. Enabling them to fulfill this potential with the appropriate graduate education and training in Africa requires, among other things, providing faculty with upgraded curriculum. Open educational resources (OER) can be instrumental in addressing these requirements through products and processes that support curriculum innovation. Agricultural education in African universities is severely hampered by out-of-date graduate teaching materials, coupled with inadequate funding to purchase new textbooks and teaching aids. If planned and implemented properly, OER can help overcome these limitations because by their very nature, OER are produced to be shared, modified, and made freely available through learning networks (Keats, 2003).

African agricultural education is also severely limited by the gaps between classroom teaching and research that positively affects farming practice and rural wellbeing. Improving the effectiveness of agricultural technology generation and dissemination systems requires responsiveness to farmer needs. At present, stakeholders, particularly farmers as the end-users of technology, generally contribute little to identifying research or curriculum priorities. Moreover, university and faculty often originate from urban areas and sometimes have limited first hand agricultural experience. Additionally, linkages with external stakeholders are not well established or supported to convey important current information on the status of regional agricultural challenges. The result is that many students and faculty are disconnected from the context and issues of smallholder farmers (Allen & Ochs, 2008).

Effective engagement with these stakeholders during content development cycles can help to bridge gaps in the curriculum. By observing farmer practices and listening carefully to local farmers during their field research, students and faculty can incorporate this information into course materials. Releasing this material as OER provides a strategy for the creation and co-creation of knowledge and a method by which African university faculty, students, and scientists can share their knowledge in the classroom, nationally, across the continent, and globally. These OERs can be openly shared and re-used as case studies and best practices in classroom teaching. Equally significant – not only can the open content be useful, but the process of co-creation itself is valuable in building the capacity of participating faculty and students to be responsive to farmer needs.

The AgShare Solution

AgShare is an 18-month planning and piloting initiative funded by the Bill & Melinda Gates Foundation during which Michigan State University (MSU) and OER Africa (an initiative of the South African Institute for Distance Education) are working with African anchor partners to build the foundation of the AgShare Open Educational Resources (OER) collaboration. MSU and OER Africa are facilitating the process by which AgShare becomes a catalyst for collaboration and alignment among existing African, OER and agricultural organizations to strengthen MSc agriculture curriculum. The leadership and organizational structure of the collaboration will be finalized by the end of the initiative and includes three types of partners: universities, community-wide partners (NGO, extension and stakeholders in agricultural value chains), and content providers.

During the pilot phase, the objective of AgShare is to implement a series of proof-of-concept initiatives, which will seek to demonstrate that:

1) Course materials can be created relatively rapidly and cost-effectively in areas of need by harnessing and adapting existing openly available educational resources rather than developing these from scratch;
2) Deployment of such course materials into higher education program, if designed according to sound educational principles, can lead to direct and immediate improvements in the quality of the learning experience and thus create enhanced conditions for improving learning outcomes for learners participating in those programs;
3) Where course materials are developed as OER against clearly defined educational needs, there are immediate and practical opportunities to facilitate their re-use by other university faculties of agriculture;
4) Actively engaging students in the production of educational materials will enhance their own learning experience;
5) Building structured relationships between academics, students, content suppliers and community-wide partners such as farmers, farmers' associations and agri-businesses to facilitate the creation and sharing of OER can have positive impact for all parties;
6) Once OER have been created for specific educational purposes (i.e. Master's Degree program) through such structured relationships, it becomes easier and cheaper to re-package these materials for different target audiences (for example, farmers or agri-business) than if one seeks to produce materials separately for each of these target audiences.

The proof-of-concept projects are designed to create a strong evidence base for the value of harnessing OER to support the development of agriculture in Africa.

Community Design

AgShare is engaging four broad types of partners during the planning phase and pilots. In broad terms partners were defined as follows:

1) *African university partners*- with a view to exploring the potential for harnessing OER to improve the quality of postgraduate program in agriculture on the continent, to be identified through a needs analysis process.
2) *Community-wide partners*- potentially including community-based organizations, non-governmental organizations, agricultural extension officers, national agricultural extension systems, national agricultural research systems, and Farmers' Groups/Associations/Organizations. These potential partners will need to be identified through consultation with AgShare's African university partners and will be engaged according to their potential to contribute to creating successful OER pilots with those university partners.
3) *Resource partners*- African and non-African organizations that produce resources relevant to the planning, development, production, and use of AgShare OER materials. Many potential partners can be identified here, and specific relationships are pursued once needs and pilot OER projects are defined with the university partners.
4) *Donors*- to be identified and engaged through processes largely independent of the pilot projects.

AgShare can only succeed in the long run if each partner believes that it will gain from this initiative, and that it can define and measure that gain. African university partners have the potential of learning that educational and economic benefits can ensue from both the creation of OER and its effective use. Participation in AgShare should be of benefit to community-wide partners because they will be able to see the direct relationship between their work and university curricula through the creation OER. Resource partners will gain because their publications and resources will have wider circulation and enhanced recognition within the global knowledge pool. This is particularly important for African journals, which are not sufficiently known internationally.

Anchor Partners

We decided to start by identifying universities as anchor partners, with the understanding that to align with MSc Agriculture curriculum gaps, the starting point is faculty and their needs for teaching materials. Our first strategy for engaging potential university partners in the AgShare project was via circulation of a needs assessment questionnaire examining the unmet needs of different postgraduate programs in agriculture. The questionnaire was circulated to selected schools, based on recommendations from the directors of two well-established African university consortia in agriculture universities specifically focused on construction of regional master's degree programs: Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) and the Collaborative Masters Program in Agricultural and Applied Economics (CMAAE). We limited the

geographic scope of initial partners to East Africa, where CMAAE, RUFORUM and OER Africa are headquartered, in order to contain travel costs.

Through discussion with RUFORUM, it was decided to focus on the Agriculture Information Communication Management (AICM) Program, as there are clear and immediate needs for development of materials, thus providing a timely opportunity to test the creation and use of a full course using OER, which can be easily adapted and replicated across a network of universities. Haramaya University was selected by RUFORUM to participate in the pilot because it is actively involved in the development of the AICM program and has an excellent track record.

Through circulation of the questionnaire by CMAAE, Moi and Haramaya Universities were selected because they demonstrated greatest willingness to participate. As a leader in the CMAAE network, Moi provides an opportunity to test the creation and use of OER materials (cases) across a network of universities. Inclusion of Haramaya in this pilot also provides opportunities for building synergies across two pilot projects, with a view to building better long-term sustainability in OER practices in that institution.

Makerere University was selected because it is one of the oldest Institutions in Africa and is internationally known in research and graduate training programs in agriculture. Additionally, it has a strong infrastructure and reputation for managing and participating in international projects relating to research and graduate training. Makerere offered a unique opportunity to test the creation and use of OER as part of graduate student field research in the high-priority agriculture field of dairy production which spans the colleges of agriculture and veterinary medicine.

United States International University (USIU), Kenya, was selected, as a leading business school seeking to develop a pedagogical model and a framework that utilizes a practical case method and active learning processes to assist farmers to transform their traditional practice of farming as a livelihood to farming as a business enterprise. USIU offers a unique opportunity to test the co-creation of OER developed by adapting existing content from USIU to the needs of leaders of producer organizations and farmer associations. The collaborative content generation is through partnerships between the USIU business school, agriculture universities and community-wide partners. The pedagogical model and the OER development process have the potential for new agribusiness curriculum.

Community-Wide Partners and Resource Partners

AgShare is premised on developing partnerships among the African universities and community-wide partners for collaborative content (OER) development. Some of the pilots have already identified potential NGO partners based on their existing working relationships. For example, Makerere is already working with a dairy cooperative in Uganda near Queen Elizabeth Park and also working with FLOSS4EDU, an IT capacity-building NGO in Kenya.

Extensive research to find appropriate materials in the agricultural sciences relevant to AgShare identified many important resources that are freely available on the Internet. Some of these resources were produced by organizations that do not think of themselves as publishers in the traditional sense of the word. We have therefore decided to use the more inclusive words "content

providers" and "resources" to describe the work that we will do on sourcing pertinent materials and on collaboration with the organizations that create them. In addition, although all of the resources are freely available, they are copyright protected. We are initiating partnership relationships for AgShare driven by the specific needs of the pilot projects. These needs are unfolding as the projects are implemented and include the Food and Agricultural Organization of the United Nations (FAO), open access journals and theses publishers.

Pilot Projects

Four university pilot projects are underway. They each have a different focus which allows the core team to pilot test different approaches for authoring, sharing, customizing and using OER to strengthen MSc agriculture curriculum.

Makerere is focused on improving dairy production while improving the use of graduate students in the processes of working with farmers and providing science-based, timely OER which can be used in MSc course modules in both the veterinary school and the agriculture school. Involving students directly in the research process, capturing the work with and for farmers, will provide replicable model for many other important commodities.

Haramaya is developing a master's level course that directly impacts Extension. It is a course in the RUFORUM Agriculture Information Communication Management master's program and has potential for network-wide localization and replication, as well as a model for subsequent courses.

USIU is developing OER that utilizes a practical case method and active learning to build an ICT applications course for mid-sized farmers and farmer organizations. This OER module will also meet the needs of MSc agriculture faculty in at least one partner university. The pilot will also develop an AgShare Fellows program that will embed expertise within the faculty and students to create and use OER, which are aimed at assisting farmers to transform their traditional practice of farming as a livelihood to farming as a business enterprise. The collaborative content generation is through partnerships between USIU business school, agriculture universities and community-wide partners. The pedagogical model and the OER development process have the potential for an entirely new agribusiness curriculum.

The CMAEE pilot involves two institutions, Moi and Haramaya, building commodity focused case studies that will be used in the program in Agricultural and Applied Economics. Cases will focus on the Economic Role of Prices and Approaches to the Study of Agricultural Market Organization for Coffee in Ethiopia and Maize in Kenya. Students will be involved in creating the cases and community-wide partners will be involved as subjects in the cases and also in the review of the materials. This collaborative approach to the creation of case studies can be a potentially cost-effective way of producing cases that can be used by all CMAAE institutions, as well as other universities.

The AgShare Eco-system

Running parallel to the university-based pilots is the development of tools and processes to make agriculture OER and the work of AgShare more visible in the global knowledge pool. OER Africa is working with Creative Commons, MSU, and a range of other technical partners to begin constructing an online 'eco-system' for AgShare, designed to enable flow of content through existing systems and increase the discoverability of that content online by people searching for agricultural content. The AgShare 'eco-system' will include support for preparing published OER for distribution as well as pushing content to other distribution channels and platforms (see http://www.oerafrica.org/agricultureoer). For example, AgShare output will be easily findable in Google and other search engines, and indexed in Agris. We are also using the FAO AGROVOC thesaurus, a multilingual, structured and controlled vocabulary designed to cover the terminology of all subject fields in agriculture, forestry, fisheries, food and related domains (e.g. environment).

A key component in the AgShare eco-system is DiscoverEd, an open source search tool developed by Creative Commons. Creative Commons is improving DiscoverEd as part of the AgShare project to better support the alignment of OER production with demand, and to support easy and accurate discovery of OER relevant to the project. To support the alignment of OER production, DiscoverEd is being improved to provide demand metrics, which will enable the direction of resource-development to those areas where demand (from MSc agriculture faculty, for example) is greatest. Support for additional metadata fields and metadata provenance tracking has already been completed as part of the project. Features improved and added to DiscoverEd for AgShare will become part of the core distribution, simplifying the customization process in the future for other communities of interest.

Results of the AgShare ecosystem and the DiscoverEd component are critical for enabling time-saving discovery of relevant open educational resources in African agriculture and to make visible African contributions to the global knowledge pool.

Conclusion

This phase of the AgShare project is focused on gathering evidence of OER impact and documenting a process by which AgShare can be extended and scaled up, including an engagement plan for additional collaborators and co-funders. Equally important is our work to demonstrate improved discoverability of African agriculture resources. We expect our findings to positively influence the way others think about OER in Africa, in agriculture curriculum, and beyond.

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