

Embedding Information Literacy into the Agriculture Curriculum in Liberia: A Model Approach for Developing Countries Worldwide

Martin Kesselman, Agriculture & Environmental Sciences Librarian, Rutgers University, New Jersey, USA, martyk@rci.rutgers.edu



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Abstract:

This presentation reviews the development of a unique required course for the new College of Agriculture and Sustainable Development at Cuttington University in Liberia. The course is designed to be a hands-on approach and use techniques and technologies that graduates will need to use themselves when doing extension work throughout the country. Students will learn about the wide array of information resources available online and offline, analyzing and assessing content appropriate for their personal research and extension work, synthesizing research to practical information and effective community engagement and communication skills. This course also teaches the effective use of various tools and technologies appropriate to various settings: illiterate farmers, community leaders, county decision makers and policy makers related to the use of sustainable agriculture practices, food security, poverty reduction, gender sensitivity, and market information. Students also learn effective teamwork skills with other professionals by working with students in other disciplines such as nursing, education, and business. The course is taught using the various delivery methods students will be utilizing in their work after graduation – eLearning modules, Internet methods for communication, text messaging, short videos, and email. There will be opportunities in the course for students to interact and communicate with other students as well as a course conference. An evaluation rubric will be created for assessment based on learning outcomes.

Keywords: agriculture information, libraries, Liberia, information literacy, information technology

Background:

During the coming months, I will be developing a novel course, CASD 304 that will be required and embedded into the curriculum of the Center of Excellence Agriculture program at Cuttington University. The College of Agriculture and Sustainable Development (CASD) is one of two centers of excellence that are being developed as part of a major USAID, Excellence in Higher Education for Liberian Development (EHELD) of which Rutgers University is a major stakeholder. Liberia is a country where over 70% of the GDP is in agriculture, where non-sustainable agriculture practices are rampant with major impacts on

the environment, where 90% of the population is food-insecure and where approximately 80% of the workforce is women, many with less than a second grade education at which time they begin to work in the fields and agricultural markets.

As the Agricultural and Environmental Sciences Librarian, I was fully integrated into developing the curriculum for CASD at Cuttington University and in fact drafted the mission and vision statement for the college as well as developing the course I am designing (see below) that will be required of all students, regardless of major in the Junior year first semester before they begin their research projects beginning in the second semester

From my investigation of the library and agriculture literature I could not find any articles that discuss courses such as this. I also sent inquiries to USAIN-L, the listserv of the US Agriculture Information Network comprised of librarians in agriculture and related areas from land-grant institutions and other universities in the US and to IAALD-L, the listserv of the International Association of Agriculture Information Specialists that is the major association for agricultural librarians and other knowledge workers worldwide. I received many emails in response to my request, all of which applauded the efforts and supported the need for a course such as this and the fact that this course was unique in being developed for undergraduates as a required component of the curriculum.

Results of my inquiries did result in a few first year classes in information literacy that focus on an agriculture-related theme, and materials available for extension agents and others for workshops. There are also organizations that have developed modules for some of the topics included, but these too are geared more for working professionals rather than to students as part of their required coursework. The most similar project, again not required, is a series of optional modules in Spanish developed by IICA (<http://www.iica.int/Eng>), the Inter-American Institute for Cooperation on Agriculture. However, there has been little use of these resources because they are not required as part of a course.

My project will be to develop the course materials and lesson plans and, where possible, adapt workshop materials that already exist. The course will also include a student evaluation rubric that will assess the various learning outcomes are met. Although this course will be developed for Cuttington University, it is hoped that it will serve as a model that can be used by other developing countries and in some cases be relevant for information literacy components within agriculture degrees in countries worldwide. This course will be highly promoted via appropriate listservs, not only to librarians but to academic faculty as well. In addition it will serve as a basis for conference presentations and a peer-reviewed article

About the Course:

CASD 304 Information Use and Technology Course Description

This three credit course focuses on up to date technologies used for information access and dissemination. Advanced use of information resources available on the Internet and their effective use is also stressed in helping students to have extensive literature reviews as part of their senior project in their final semester of study. Information resources include full-text journals and indexing and abstracting tools available on AGORA from FAO as well as other resources to unique materials, including data, available on the Internet. New technologies, particularly those involving mobile devices will be emphasized for having information on hand to take into the field, to transmit information to cellphones and other mobile devices,

other communications channels including multimedia, radio, and voice over the Internet, and effective techniques for providing information as part of extension. A major focus of the course will be on the development of using resources for both workplace literacy and ongoing lifelong learning. This course may be taught through the use of webinars and distance learning and involves a hands-on approach to accessing information in today's world.

For learning outcomes, students will be able to:

- Identify the difference between scholarly/peer-reviewed research and practical information related to agriculture as well as information that is authoritative, unbiased, and timely.
- Use major resources, both online and offline, to obtain relevant full-text resources and to be able to utilize scholarly resources in their required senior research project
- Synthesize scholarly resources themselves in the creation of practical information resources understandable to the general public (farmers and others) and also effectively select and utilize important relevant documents from other West African countries needed for extension work.
- Utilize a variety of delivery methods for providing information to farmers, community leaders, and others for sustainable agriculture practices and market information such as text messaging, mobile devices/tablets, radio, print media, and public speaking and on-site teaching.
- Learn how to filter information, use social networking, and keep abreast of new information for continuing education and lifelong learning.

This course teaches students the wide array of information resources available online and offline, analyzing and assessing content appropriate for their personal research and extension work. This course also teaches the effective use of various communication tools using technologies appropriate to various settings: illiterate farmers, community leaders, county decision and policy makers related to the use of sustainable agriculture practices, food security, poverty reduction, gender sensitivity, and market information. This course also teaches students how to effectively work with other professionals such as librarians, health workers, educators (literacy, learning), business professionals, media workers and others. Team work will be emphasized as well as active learning opportunities.

The course is taught using the various delivery methods students themselves will be utilizing in their work after graduation – eLearning modules, Internet methods for communication, text messaging, short videos, and email. Webinars will also be used as a way to interact and communicate with students. Some in-person lectures on how other experts use information and communication in their work will be included.

Course modules planned include the following topics:

- The importance of relevant, appropriate, unbiased information in today's society
- Imagineering and Innovation – Thinking out of the box
- Defining a research topic using various tools such as mind mapping

- Critical thinking skills and an introduction to library research and research strategies taking into account scholarly resources, authority, authenticity, bias, and timeliness.
- Use of major information resources available offline and online including TEEAL, AGORA, and OARE
- How extension and information workers utilize information in their work to support sustainable agriculture practices and provide market information. Learning to synthesize evidence-based information for sustainable agriculture and as a result, power community development
- Communication skills and work with a variety of users in a team based environment: farmers, community leaders, and policy and decision makers, other professionals
- Developing effective presentation and communication methods using appropriate technologies such as tablets, Pico projectors, solar-power, texting, mobile devices, radio, public speaking, and newspaper articles.
- Writing up your research and citing resources appropriately.
- Personal filtering of information on a regular basis and the use of e-learning, information services, and webinars for continuing education and lifelong learning.

At the end of the course, there will be a student conference with presentations. Periodically during the course, there will be feedback sessions with students on research progress towards their senior projects utilizing appropriate presentation tools. Assessment by other students in the class will also be incorporated.

Incorporating Technology:

This project also reviews and assesses the use of new and emerging technologies and mobile applications for agriculture extension services in rural communities in developing countries. The course is designed to use a hands-on approach and technologies and techniques that graduates will need to use themselves when doing extension work throughout the country. Key to this study is the technologies themselves and how they might be applied to the course under development and to extension work in developing countries worldwide

The primary aim is to review new technologies and mobile applications to deliver practical information to farmers, community leaders, and others for sustainable agriculture practices. Additionally, I will investigate technologies for teaching and learning of agriculture research and practical information that can be utilized in environments without access to the Internet or in some cases, even to electricity.

Major objectives include the following:

- To develop a rubric to determine the applicability of new and emerging technologies for use by students and extension agents for agriculture information and learning.
- To investigate open source and lower-cost technologies, as well as mobile applications available that are suitable for developing countries, as well as emerging innovative technologies that show promise for learning.

- To teach and field-test the use of these technologies for various delivery methods of practical agriculture information that current students will be utilizing in their work after graduation and for continuing education of those professionals already involved in extension activities.
- To demonstrate how these technologies might be used collaboratively in a team-based setting that also include working with other professionals such as librarians, educators, health workers, social workers, and business professionals.
- To teach students and others how to make use of some of these technologies to filter information and for e-learning to develop a culture of continuing education and lifelong learning.

Concluding Remarks:

As an editor and author, I have written extensively and given presentations on new technologies, mobile applications, and their applicability to library and information services as well as their use in educational settings. Of particular note is a recent grant-funded project, EAKO, Engineering Access to Knowledge Offline. In this project, myself and two colleagues, developed the first ever open-source database of freely available journals and books in engineering as a “library in a box” for areas in which Internet access is unavailable. Since that time, EAKO for engineering information has been supplanted by a huge database of full-text resources from the World Intellectual Property Office of the UN, ARDI – Applied Research and Development for Information. However, the offline open-source “library in a box” is sustainable as it has applications for the delivery of free textbooks that can be full-text searchable for an academic department or for, in this case, practical agriculture information, for teaching and for use in rural communities.

Clearly current methods of disseminating information to farmers are not helping in poverty reduction and agriculture sustainability. It is hoped that this research will demonstrate how some of these newly available technologies might be deployed in meeting these needs. Several technologies have already been identified for study and will be field tested, and reviewed according to a rubric that will be created and that will include the following: applicability for agriculture and rural settings in developing countries, sustainability, ease of use, ability to run on solar power, rechargeable batteries or requiring another power source, cost vs. benefit ratios, Internet, WI-FI, or cellular requirements, and strengths and weaknesses related to the aims and objectives of this study compared to other technologies currently available. New technologies in prototype will be examined as possible, using the same rubric as to their potential application. Any technology review is a moving target. The key of the project is a methodology to determine if a new or emerging technology has the potential to meet the needs of the population under study: agriculture students, extension agents, and farmers in rural communities.

Poverty reduction, literacy, and the need for sustainable agriculture practices in developing countries cannot be overstated. Clearly there is a crisis in countries such as Liberia and it also exists in many tropical rural communities worldwide. There are just a handful of examples of how some public libraries are using current technologies to support farmers in their community (see beyondaccess.net). Better and newer technologies are now available to help libraries where they exist, extension agents in the field, and where there is the greatest potential, to agriculture students as part of their coursework for graduation. Librarians and

libraries employing these technologies have a critical sustainable role and this study that will help demonstrate just how important that role really is.