

INTRODUCTION TO THE SPECIAL ISSUE ON OER AND ONLINE LEARNING FOR INTERNATIONAL, RURAL, AND HARD-TO- REACH POPULATIONS

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KEY WORDS

Open Educational Resources, Africa, agriculture, WikiEducator, curriculum development, higher education, OpenCourseWare, OER, open content, open technology platforms, food, development, open knowledge, research, development, international, AgShare, participatory action research, metadata, multilingual tools, learning analytics

I. INTRODUCTION

This special issue of the *Journal of Asynchronous Learning Networks* on Online Learning and Open Educational Resources (OER) for International, Rural and Hard-to-Reach Populations is a compilation of projects spurred by global changes and needs in education. Extending knowledge and education to the masses through Internet technologies has flourished for the last 15 years. The reach of online education is beginning to penetrate international and rural populations. OER plus online learning are a powerful set of tools that extend reach and lower costs [1]. This special issue showcases projects and trends that, when combined, are changing the scope and reach of education.

II. THE AGSHARE COLLECTION: IMPROVING TERTIARY EDUCATION FOR AFRICAN AGRICULTURE

The first set of papers is the result of a grant generously funded by the Bill & Melinda Gates Foundation called AgShare. Detailed by Geith and Vignare, the paper describes changes in the methods of graduate agriculture education [2]. Graduates of higher education in developing regions can become the brightest future leaders in industry, government, and academia and be positioned to implement change that will directly and positively affect their communities. Enabling them to fulfill this potential with the appropriate education and training requires, among other things, providing faculty with upgraded curriculum. OER can be instrumental in addressing these requirements through products and processes that support curriculum innovation.

Often, universities in developing regions are severely hampered by out-of-date graduate teaching materials, coupled with inadequate funding to purchase new textbooks and teaching aids.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. These graduates

work on real community problems and, as a result, extend science-based knowledge into the community. The AgShare projects all demonstrate how, by changing the current paradigm of lecture-based education, graduate students and universities can become a solution to the myriad of rural agriculture problems.

For instance, United States International University (USIU) [3] in Kenya has robust curriculum in business and information technology and has applied interdisciplinary agribusiness practices to the needs of multiple rural farm communities and cooperatives. The USIU agribusiness training course was developed as OER to help both farmers (who had limited training in commercialization of agriculture) and farmer organizations. Both the undergraduate students and faculty championed entrepreneurial mindsets to shift farmers' thinking from seeing the farm as just a farm to focusing on the farm being a firm. The students and faculty frequently followed up with the farmers in field visits and received positive feedback on the OER materials. However, the uptake and use of the digital materials is limited by the availability of the Internet in rural areas and lack of computers. Another AgShare project, conducted at Makerere University, Kampala, Uganda, was designed to create OER for teaching and community development through action research. The university worked with a small rural community of dairy farmers [4, 5]. The study was conducted by an interdisciplinary team of investigators from the fields of veterinary medicine and agribusiness. Two master of science students conducted dairy value-chain action research that produced case materials that they used to create OER course modules (milk hygiene and marketing modules) and to design interventions that would improve milk production, quality, and safety; reduce milk spoilage; increase prices received by farmers; and support on-farm processing of yogurt and other dairy products. The students used their work to create community literature, case studies, and their theses.

Graduate programs in agriculture in developing countries such as in Ethiopia are often designed to meet the need for skilled manpower for agricultural development [6]. In Ethiopia, the government expects agricultural graduates to contribute to the transformation of smallholder agriculture. However, no effective model has emerged in which graduates are regularly making concrete contributions to the urgent needs of agricultural development. The author of "The Potential of a Multimedia Open Education Resource Module in Enhancing Effective Teaching and Learning in a Postgraduate Agriculture Program: Experience from AgShare Project Model" states, "Among the key findings from this experience is that a multimedia OER module developed against clearly defined educational needs, with authentic content designed according to sound educational principles, can lead to direct and immediate improvements in the quality of teaching and learning, which enables learners to acquire knowledge and skills that fit an ultimate purpose in a real-life context. [6]."

III. OER MAKING A DIFFERENCE THROUGHOUT THE WORLD

While the AgShare projects are seeding new methods of learning and growing the creation and use of OER, there are multiple other projects in Africa doing similar work in education settings. This special issue of JALN is privileged to include papers on projects that illustrate a powerful international trend in which OER and the educational methodology changes afforded by the projects are profoundly altering the development of education in many developing, rural, and international contexts.

This first paper in this section presents a case study of the adoption and use of open textbooks by three high school teachers in the KwaZulu-Natal province of South Africa [7]. The textbooks, collaboratively authored and distributed through the South African-initiative Siyavula, are available online and are openly licensed, allowing teachers to freely use, modify, print, and share them with peers. The authors build on prior research with the project and provide in-depth qualitative studies from the teachers.

The second paper in this section focuses on the issues faced by higher education institutions (HEIs) in Africa in responding to the expanding demand for tertiary education while maintaining or enhancing the quality of their course offerings [8]. The growing demand requires a more sophisticated adoption of information communication technologies. The paper shares the design and development of an openly

licensed capacity-building intervention and the piloting thereof with academic staff at three educational institutions in southern Africa. They conclude that building the skills of academic staff is critical to the success of growing OER throughout the continent.

IV. POTENTIAL OER DISRUPTIONS

The final section of this special edition focuses on OER technology platforms and methods compared to the previous papers which focused more on their application in education settings. Techniques include MOOCs, Wikis, and using analytics and metadata. The first paper in this section explores the growth of WikiEducator and the availability of open source wiki technologies to meet the needs of informal and formal learning. WikiEducator, founded in 2006 [9], initially operated with funding support from the William and Flora Hewlett Foundation (WFHF) under the auspices of the Commonwealth of Learning (COL), an intergovernmental organization created by Commonwealth Heads of Government to encourage the development and sharing of open learning and distance education knowledge, resources, and technology. WikiEducator's flagship, the Learning4Content (L4C) project, builds capacity among global educators by teaching wiki technology to newcomers and experts in the field of open education. The uptake of L4C has exceeded expectations for those who do not have access to online content or even computers.

The authors of "Using Multilingual Analytics to Explore the Usage of a Learning Portal in Developing Countries" report on efforts to document information about how learners search for information [10]. The field of learning analytics is evolving, and it is critical to understand the choices of learners and users of international information portals. As the adaptation of existing portals in multilingual environments is a cost- and time-consuming aspect of the development of a portal, the outcomes of learning analytics are important because they may provide the requirements on which further multilingual services of a portal will be built, ensuring their efficiency. The paper aims to identify and interpret the behavior of users from developing countries visiting a multilingual learning portal using the log files of the portal by applying the methodology defined in previous work by Stoitsis et al. [11]. The next paper in this section shares information about a technology infrastructure currently in demonstration mode at Michigan State University that is aimed at supporting the improvement of global food safety [12]. The technology collects various agricultural education content (e.g., training descriptions, open educational content, competencies, standards) and provides that content through various interfaces, depending on the needs of the targeted audience. The overall architecture of the infrastructure for the food safety sector and the necessary components are presented, as are the main usage scenarios that explain how the infrastructure can enhance existing platforms and services in the areas of food safety and food security.

The final paper explores MOOCs and their potential for credentialing within a global context [13]. The paper focuses on a specific type of MOOC called a cMOOC, which is based on the theory of connectivism and is better aligned with the nature and purpose of OERs. The authors describe the two cMOOCs they offered. The paper provides research on one of these cMOOCs, which was independently created by a third author, and also provides student comments that demonstrate the intercultural connections that are shared within a cMOOC.

V. CONCLUSION

The combination of all twelve articles creates a rich understanding of the power of OER, when combined with better teaching and learning practices, to impact international, rural, and hard-to-reach populations. While the special journal is by no means comprehensive, the trends indicate that using OER and online learning with underserved populations requires understanding and purposeful design if these technologies are to serve these distinct communities.

VI. ACKNOWLEDGEMENTS

This special journal was inspired by the great work of all the AgShare project partners, including United States International University, Makerere University, Moi University, Haryamaya University, OER Africa, RUFORUM, and SAIDE. There are also individuals who were critical in providing crucial information and advice, and they include Liz Levey, Ken Harley, Gashaw Kebede, and Krishna Alluri. From the Bill & Melinda Gates Foundation, we wish to recognize the current program officers: Brady Walkinshaw, Shan Hu, and Roy Steiner. We also wish to thank the initial program officer, Khalid Bomba, who helped create the AgShare concept.

We also wish to recognize the team at MSUGlobal who supported the AgShare project, including Sunnie Kim, Gwyn Shelle, Julie Orlor, and Angie Martin. In the College of Veterinary Medicine, John Kaneene's partnership and advice was critical to a successful outcome.

A special thanks goes out to the Sloan Consortium and its Editors Janet Moore (former) and Gary Miller (current) for their continuous support to publish this special edition of the *Journal of Asynchronous Learning Networks*.

VII. REFERENCES

1. **Geith, C. and Vignare, K.** [Access to Education with Online Learning and Open Educational Resources: Can They Close the Gap?](#) *Journal of Asynchronous Learning Networks*, 12(1): 1–22 (2008).
2. **Geith, C. and Vignare, K.** Agshare Open Knowledge: Improving Rural Communities through University Student Action Research. *Journal of Asynchronous Learning Networks*, in press (2013).
3. **Maina, M., Wambalaba, F., Nduati, G., Wanyama, W., and Ndirangu, D.** Using OER as a Tool for Agribusiness Management Training for Hard-to-Reach Rural Farmer Populations. *Journal of Asynchronous Learning Networks*, in press (2013).
4. **Kaneene, J., Kisaka, S., Ssajjakambwe, P., Miller, R., and Kabasa, J.** Creating Open Education Resources for Teaching and Community Development through Action Research: An Overview of the Makerere AgShare Project. *Journal of Asynchronous Learning Networks*, in press (2013).
5. **Ssajjakambwe, P., Kisaka, S., Vudriko, P., Setumba, C., Bahizi, G., Kabasa, J.D., and Kaneene, J.** Creating Open Education Resources for Teaching and Community Development through Action Research: The Milk Production and Hygiene Module. *Journal of Asynchronous Learning Networks*, in press (2013).
6. **Hassen, J.Y.** The Potential of a Multimedia Open Education Resource Module in Enhancing Effective Teaching and Learning in a Postgraduate Agriculture Program: Experience from AgShare Project Model. *Journal of Asynchronous Learning Networks*, in press (2013).
7. **Jimes, C., Weiss, S., and Keep, R.** Addressing the Local in Localization: A Case Study of Open Textbook Adoption by Three South African Teachers. *Journal of Asynchronous Learning Networks*, in press (2013).
8. **Mallison, B. and Krull, G.** Building Academic Staff Capacity to Support Online Learning in Developing Countries. *Journal of Asynchronous Learning Networks*, in press (2013).
9. **Schlicht, P.** Turning the Digital Divide into Digital Dividends through Free Content and Open Networks: WikiEducator Learning4Content (L4C). *Journal of Asynchronous Learning Networks*, in press (2013).
10. **Protonotarios, V., Stoitsis, G., Kastrantas, K., and Sanchez-Alonso, S.** Using Multilingual Analytics to Explore the Usage of a Learning Portal in Developing Countries. *Journal of Asynchronous Learning Networks*, in press (2013).
11. **Stoitsis, G., Manouselis, N., and Sanchez-Alonso, S.** Data Set Requirements for Multilingual Learning Analytics. *International Journal of Technology Enhanced Learning (IJTEL)*, 4(1/2): 47–66 (2012). ISSN: 1753-5255
12. **Manouselis, N., Thanopoulos, C., Vignare, K., and Geith, C.** An Open and Scalable Learning Infrastructure for Food Safety. *Journal of Asynchronous Learning Networks*, in press (2013).
13. **Yeager, C., Hurley-Dasgupta, B., and Bliss, C.** CMOOCs and Global Learning: An Authentic Alternative. *Journal of Asynchronous Learning Networks*, in press (2013).