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Scientific Animations Without Borders and Njala University

*Creating and Sharing Educational Content on
Ebola in the Age of Online Collaborations*

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Scientific Animations Without Borders (SAWBO) is a University of Illinois at Urbana-Champaign (Illinois) based program that was launched in 2011. Created and co-managed by Julia Bello-Bravo and Barry Pittendrigh, SAWBO is part of the College of Liberal Arts and Sciences and the Center for African Studies on the Illinois campus. It promotes agricultural, health, and women's empowerment knowledge for people of all literacy levels and linguistic backgrounds throughout the world. The program reaches out to global experts on specific topics in a specific area to assist in the development of a script and storyboard that is then translated into a two to five minute 2D or 3D animation that is scientifically accurate as well as easily accessible and understandable to users of all literacy levels. The script for an animation is translated and receives audio overlay in diverse languages and dialects by volunteer native speakers. The result is a brief animation that is freely available to anyone who desires to use it for educational purposes.

The SAWBO project was inspired by the fact that there are upwards of one billion low-literate learners on the planet, speaking highly divergent languages. Many of these individuals live in rural areas and many do not have access to the critical life-improving knowledge that exists in academic literature and print documents. SAWBO is an academic exploration of how to deliver such solutions in a high throughput and cost-effective manner as well as a system to provide practical outcomes.

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Julia is both a co-founder and co-director of Scientific Animations Without Borders (SAWBO). She received her JD from the University Complutense of Madrid, her MBA from IDE-CESEM, and her MS and PhD from Purdue University. Her most recent publication “The Evolution of Shea Butter’s Paradox of paradoxa and the Potential Opportunity for Information and Communication Technology (ICT) to Improve Quality, Market Access and Women’s Livelihoods across Rural Africa” was published in the journal *Sustainability* (Bello-Bravo et al., 2015).

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Barry is both a co-founder and co-director of Scientific Animations Without Borders (SAWBO). One of Barry’s forthcoming papers, co-authored with Julia Bello-Bravo, is entitled “A Pilot Study Using Educational Animations as a Way to Improve Farmers’ Agricultural Practices and Health Around Adama, Ethiopia” which will be published in the journal *Information Technologies & International Development* (Bello-Bravo et al., 2015).

Traditional extension service paradigms, both within the United States and throughout the world, are in considerable flux and are constantly challenged in a world where the number of people gaining knowledge from non-traditional pathways is increasing. In many developing nations efforts are being made to better understand and restructure existing extension services. However, in practice some of these services are essentially defunct or the cost of the knowledge delivery mechanisms are prohibitive. The potential, as well as the need, for non-traditional pathways means that non-traditional players can be empowered to share and distribute knowledge and actively participate in the creation of educational content for local communities. Empowering organizations, no matter how small or large, with scientifically accurate extension materials in local languages that can be shared and duplicated, at little to no cost, is critical to the development of effective strategies that allow for greater impact. This “democratization” of deployment of knowledge means that even an “NGO of one” (i.e. an individual) can go into the field and transfer highly accurate, relevant and important knowledge to target populations.

Challenges to the “Democratization of Deployment”

Three challenges are encountered when attempting to democratize knowledge deployment. The first is the challenge of cost. To make and share live action films in local contexts, with local actors, in local languages is often a prohibitively expensive and physically difficult process for many groups. For some specific topics, this only becomes a logical option for a few highly funded programs. A second challenge is how to make sure that the content is scientifically accurate. Without a peer review process by content experts, there is a high degree of probability that some or much of the content that is created may not be accurate. The third challenge that arises can be termed the “Las Vegas effect” in reference to the marketing slogan, “what happens in Vegas stays in Vegas”. This is also the challenge of live action films, essentially home movies, in that what is created locally is generally only useful locally. When one begins to work in countries with dozens of languages, the challenge of recreating scientifically accurate content across many groups without rigorous review by experts on the topic becomes daunting. SAWBO addresses all of these challenges through the reuse of animations containing information on very specific topics that has been verified by global experts and translated into local languages.

SAWBO is situated in a world of individuals and groups with expertise on specialized topics that have been rigorously addressed by the scientific community. These individuals and groups are the population upon which we rely for educational content in the literate world. This same knowledge can be used to create resources for low-literate learners. In order to create scientifically accurate content there is a need to “democratize” the ability of these experts to play an active role in the creation of content for target audiences of low literate learners. How do we engage these experts in a routine manner and encourage their participation? To this end, the longstanding model that academics use to publish, fair attribution and a contribution to the common good, is a model that SAWBO has embraced to encourage engagement. Accordingly, we need to understand the needs in the field in order to decide which content needs to be created. To this end, when the SAWBO team creates content, we reach out to global experts and in-country “deployers” in a virtual manner for input into the creation of the digital content. What the experts and distributors get in return for their volunteer efforts is attribution in the final animation credits. The final product is made freely available to everyone, and most importantly to the volunteers, to use in their community for their own work, to impact the target audiences in which

they have invested their time and effort.

Sierra Leone – Project Development and Outcomes

In February of 2014 the Center for Global Studies (CGS) and the C.W. Kearns, C.L. Metcalf and W.P. Flint Endowment co-funded a trip for Barry Pittendrigh and Julia Bello-Bravo to Sierra Leone, specifically to interact with representatives at Njala University. This exploratory trip, which represented a joint effort between SAWBO, CGS and CAS, focused on determining potential collaborative links between SAWBO, Illinois, and Njala University. The SAWBO team had only one full day at Njala University during which it met with Njala students to perform seven translations and voice recordings using existing SAWBO health animations; developed a script with a local NGO on a charcoal water filtration system being used in nearby villages (which was subsequently vetted and approved by a global expert on the topic); and spoke on a local one-hour radio show about their work. This one-day visit sparked an ongoing collaboration with students and later select faculty and staff at Njala University.

Within a few months of the completion of the SAWBO trip to Sierra Leone, the students from Njala alerted SAWBO of Ebola cases being reported in the country. SAWBO then began the process of script development working together with the emerging Njala team (under the leadership of Thomas Songu), students from the Global Health Initiative on the Illinois campus, and global health expert volunteers. Then, with funding support from the University YMCA in Champaign, Illinois, SAWBO created the educational content for an Ebola animation. The animation was then vetted through the appropriate government approval processes in Sierra Leone, translated into multiple languages for the country, and made publically available. SAWBO then shipped the animation back to the Sierra Leone YMCA and representatives at Njala University.

Upon completion of the Ebola animation Njala University began using it on campuses, and in local and national level efforts to disseminate information. The animations were shared with and/or given to various groups, including the Office of the President, the National Ebola Response Center (NERC) and the United Nations Monitoring of Ebola Emergency Response (UNMEER), Information Management Working Group (IMWG), United Nations Development Programme (UNDP) Sierra Leone, United Nations pillars (WHO, UNDP, and OCHA), Department for International Development (DFID), National Youths Commission, Ministry of Health and Sanitation (MoHS), the Tertiary Education Commission, and others. As part of Njala University's community sensitization and public education program for Ebola, various workshop-style seminars were organized for all schools and departments in Njala University to demonstrate the animations to a wider audience. Additionally, staff and students from Njala University took these animations back into their communities on the cell phones in their pockets. Copies of the animation are now available at the newly established International Research Archive (IRA) and the National Ebola Museum (NEM) on the Njala campus for public viewing and reuse. As the animations can be easily copied and viewed by many people, the Njala University team conservatively estimates a minimum of 15,000 people have viewed the Ebola animations in Sierra Leone.

Moving Forward

As part of the National Ebola Response Initiative, Njala University is collaborating with its development partners, including SAWBO, to research, record, archive, and document the Ebola outbreak in Sierra Leone by establishing a Na-

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Thomas is an Information and Communication Technology (ICT) professional with over 15 years in ICT management in education, finance, media, defence, telecomm, and mining. Thomas is currently working as the Director of ICT, Njala University. He has recently worked as ICT Consultant for leading global companies in the UK/EU, USA, and the United Arab Emirates (UAE). Thomas earned his BS with a major in Mathematics and a minor in Economics from Njala University, Sierra Leone, and MS in Information Systems Management, from London South Bank University, United Kingdom. Thomas is currently a PhD Reader in Information Technology. His research interest focuses on leveraging ICT in public health emergencies and ICT integration to strengthen teaching, learning and research capacity in tertiary education in developing countries.

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tional Ebola Museum (NEM) at Njala Campus. The museum will highlight the complete story of the Ebola outbreak in Sierra Leone and the surrounding West African sub-region. By accomplishing these aims Njala University will provide a valuable and unique research resource, develop a software platform that can be deployed in future outbreaks to manage an Ebola response or be rapidly adapted to manage other infectious disease outbreaks. This initiative has been endorsed by H.E. the President of the Republic of Sierra Leone and Chancellor of Njala University, Dr. Ernest Bai Koroma and partner institutions, including MoHS, NERC, DFID, Royal Netherlands Embassy in Accra (Ghana), and UN pillars (WHO, UNDP and OCHA).

The knowledge and experience preserved in the archive and the museum is not only valuable to the international research community and to the local population but also to other countries for their outbreak preparedness. In order to have the widest educational impact, Njala University is interested commissioning and implementing voice-overs of the SAWBO Ebola animation in several dozen major languages for West Africa and all WHO official languages (16 new language variants needed for Liberia will soon be released by SAWBO). As in Sierra Leone and Liberia, the team will seek out approval from the appropriate government authorities in any other country where the animations are to be deployed. To enhance usability and accessibility, the Njala University team intends to hold an ICT train-the-trainer session for each country in which they will train attendees how to use the SAWBO App to deploy educational animations.^{1,2}

Through Njala University's ongoing relationship with WHO/PAHO, the consortium has been asked to provide advice on helping countries in Latin America and the Caribbean prepare for the import of Ebola or other new and emerging diseases. Thus, Njala University will therefore also offer two regional training sessions in partnership with WHO/PAHO. Thus, through this ongoing partnership we hope to continue to expand the use and impact of the SAWBO Ebola animation.

1. SAWBO has created and released a free Android App that makes all SAWBO content easily downloadable and easy to share across non-iOS phone systems that have Bluetooth® and video capacity. Thus, any of these above groups can download the App and have access to all new language variants of the animations as soon as they become available. It is available for free download at <https://play.google.com/store/apps/details?id=edu.uiuc.sawbo&hl=en>

2. http://news.illinois.edu/news/15/0515SAWBO_app_BarryPittendrigh.html

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