

Using Radio to Deliver K-12 Agricultural Education

Executive Summary

Concept: Use radio and audio file technology to provide agricultural instruction and enhance access to agricultural information for rural farmers through delivering the content to their children in agriculturally oriented primary and secondary education.

Agricultural information will be embedded within a larger curricular framework of traditional academic information. Materials and examples will focus on agricultural situations. In this way, the students of rural farmer household, without access to a brick-and-mortar classroom, would be prepared to assist with both agricultural and non-agricultural needs of the community. Each student becomes a trusted resident knowledge worker for the farm. This project would teach pertinent agricultural skills and knowledge to those youth who are likely to become farmers upon reaching adulthood. The program will be based on the EDC model of instruction, which incorporates daily ½ hour radio broadcasts in English and untrained classroom facilitators. The initial project would develop curriculum for both primary and lower secondary levels. Upon successful completion, students would receive government recognized school leaving certificates.

Strong formative feedback methodologies will allow rapid modification and improvement of instructional materials and delivery systems. Participants in the process will be able to query the system to better personalize instruction to their needs. For example, if a parent of a student indicates that the information in the fertilizer examples is inaccurate or inappropriate, he or she would be able to “feed” that information back into the system, and those materials can be altered for future iterations (if appropriate). If it is determined that the instruction actually is correct, then the information could be used for individualized interventions and instruction with the smallholder farmer to assure that their specific needs are met.

2) Rationale: The educational needs of farmers do not begin when they become farmers. According to Kruger, et al (2006), who studied poverty issues related to farmers in South Africa, the majority of adult farmers in their study had only a fourth grade education, and farm schools provide education only to the seventh grade. The cycle of poverty will continue as children of farmers will be likely to become farmers when they reach adulthood – even though, in most cases, parents desire other options for their children.

Klauss Droppelman of the Agricultural Consultative Forum in Zambia, reported the strong impact that educational levels have on farming income (WorldAgInfo site visit, 2007). There is a positive correlation between educational level of the farmer and the income produced by the farm.

Evidence the project can be successful:

The Educational Development Center (EDC), working in conjunction with the Zambian Ministry of Education, the Peace Corps, and the Educational Broadcasting Services, have test results that confirm that radio education with limited non-professional community support is successful. Approximately 80,000 Zambian children (many of whom are children of smallholder farmers and would not attend school otherwise) have enrolled and participated in the program. More importantly, the EDC personnel indicate that the learning that is produced in this methodology is roughly equivalent to more traditional educational models based on end of course tests.

3) Expected benefits of the project:

Two of the primary benefits of this project are:

- a) Current smallholder farmers will receive high quality information through their own on-site agricultural knowledge worker (AgRadioEducation students). Feedback systems incorporated into the curriculum will allow farmers and their children to access specific information for their individual needs.
- b) Future smallholder farmers will be better prepared to farm profitably. By continuing their education longer and having it tailored to their probable future career, their farming yields, profits and quality of life should improve. In addition, these students will also receive much of the traditional educational content that they have been missing so far, with the added benefit of learning English (or other base language).

Sustainability and scale:

Radio or audio device delivery of modular content offers great economies of scale in bringing the program to new populations. Instruction in English or other base language will make it much easier to scale up this effort in multiple countries. There will be less need to translate instruction into local languages. Often it can be the RadioAgEd students, themselves, who can act as translators for their families for basic agricultural information.

With a modularized curriculum design, those areas of agricultural knowledge that are generalizable can be shared widely across the system freeing resources for the creation of support content that is specific to individual regions/countries.

4) Projected costs of the project.

Costs will depend on initial size of project and projected scaling to new populations, countries, and language groups. Major costing categories are:

Curriculum Design and Development
Instructional Support Materials
Radio/MP3 Transmission Costs
Support Staff
Field Personnel
Formative & Summative Evaluation

5) Measures of success.

The number of students served who complete the process will be an indication of success. There are already standardized academic tests used in many countries to summatively assess traditional student learning, supplemented with measures to evaluate the specialized content. The use of the formative assessment tools will provide qualitative and quantitative data to determine the engagement of the participants (both students and current smallholder farmers).

New measures will be developed to assess comprehension of agricultural information and its dissemination and use on students' households farms.

Long term comparisons of relative crop production, farm income, and standard of living for the families of students involved with the project will provide data to determine the ultimate success of the project, if longitudinal studies are funded.

6) Risks:

The results of radio education to date may not be replicated with agricultural content. It may be difficult to obtain Ministry of Education support for a modified curriculum offering parallel school leaving certificates. There is need to assure that the content is delivered appropriately. Careful effort will be required to assure that generalizable information actually is appropriate for the settings where it is taught. Poor agricultural information can have adverse production, ecological and environmental impacts.

References

Kruger, A., Lemke, S., Phometsi, M., van't Riet, H., Pienaar, A.E., and Kotze, G. (2006). Poverty and household food security of black South African farm workers: the legacy of social inequalities. *Public Health Nutrition*, 9, p. 830-836