

Distance learning program for agricultural education in Southern Africa

Mungule Chikoye, Krishna Alluri, Richard Siaciwena, and Rainer Zachmann *

Abstract

The Commonwealth of Learning (COL) in collaboration with the In-Service Training Trust (ISTT) and the Directorate of Distance Education (DDE) at the University of Zambia is developing a distance-learning program for agricultural education in Southern Africa. The goal is to contribute to sustainable improvement of food security and alleviation of poverty, while protecting resources and environment, through access to knowledge by distance learning.

E-mailing and teleconferencing were used in conceptualizing the project, and in planning and implementing the program. ISTT organized an initial planning workshop on "Materials development for a distance learning program for agricultural education in Southern Africa". Thirteen participants, including four women, came from Namibia, Tanzania, Uganda, Zambia and Zimbabwe. They represented governmental and non-governmental institutions, engaged in agricultural training, research, and/or extension.

The workshop was highly interactive. The discussions revealed the need for distance learning materials in cowpea and soybean for extension workers. Field visits and discussions with resource-poor farmers emphasized the relevance of simple, but scientifically precise distance learning materials.

Participants, using their experience and knowledge in agriculture, farmers' priorities, and principles of distance learning, produced course curriculum, course outline and drafts for the learning materials. After considering various media, print medium was chosen to effectively reach the target audience. Participants developed a long-term work plan.

Using an e-mail listserv and teleconferencing, resource persons provided guidance to the participants to improve their drafts. Lack of convenient and frequent access to telecommunications was a major obstacle. While developing learning materials through intervention from outside experts might have been easier, the project is deliberately based on participation and partnership to aim at effective and sustainable outputs.

Next steps will be a pretest with selected learning materials, and a follow-up workshop.

* Controller of Programmes, ISTT; Project Coordinator, COL; Director, DDE; and Consultant, International Agricultural Research, Training and Communications.

Background

Worldwide, an estimated 1.2 billion people live in absolute poverty on less than US\$ 1 per day, with another 1.6 billion subsisting on less than US\$ 2 per day (World Bank, 1999). Rural poverty currently represents a high percentage (62 %) of total poverty. Poverty leads to food insecurity: people are not sure about availability of food for the next day. Poverty and food insecurity cause social and political instability.

Increases in world food production have more than kept pace with increases in the global population between 1960-2000. Also, global food prices declined generally. Nevertheless, the situation of food-security in many developing countries is critical. The situation in sub-Saharan Africa is particularly fragile (FAO, 2000).

Approximately 800 million people out of a world population of 6 billion are food insecure (FAO, 1999). Two thirds of the undernourished live in Asia and nearly a quarter in sub-Saharan Africa. Of these 800 million people, 160 million are malnourished children. Without additional interventions in food and nutrition, still 135 million children will likely to be malnourished in 2020. Of these, 77 % will live in sub-Saharan Africa and South Asia.

Over the past 20 years, the agricultural growth rate in the region of the Southern African Development Community (SADC) has been low. Between 1980 and 1995, the gross domestic product (GDP) grew only at an average annual rate of 1.5 %. Compared to many parts of the developing world, food security prospects in the SADC region have been especially low due to poor performance of the agricultural sector, that failed to keep up with the population growth. The situation of food production and food-security in most member states of SADC declined due to factors such as droughts, floods, and low investment in agriculture. The persistence of hunger, malnutrition, and poverty remains widespread due to weaknesses in institutional and human resources.

Changes in the economic, social and natural environment place new demands on the agricultural sector in terms of policy formulation and management skills. These demands provide a strong role for training on food security programs to improve partnerships in agricultural and rural development, and indeed increase and stabilize food production and productivity in a sustainable manner.

Agricultural knowledge and technologies are available, however often do not reach the ultimate users: the farmers. Frontline extension workers may not afford to get acquainted with latest technical and scientific developments through resident study at colleges or universities. Distance learning offers a chance to keep updated and to transmit relevant information to farmers, thus contributing to food security and poverty alleviation.

Only by overcoming poverty and inequity will we create the conditions for sustainable peace.

COL-ISTT-DDE Collaboration

With the need for improved food security in sub-Saharan Africa, the challenges of sustainable agriculture become increasingly complex. Agriculturists - researchers, educators, extension workers - of governmental, nongovernmental, and private institutions need continuously knowledge on developments in agricultural consumption, marketing, product development, and production.

In an effort to support institution building for distance learning in sub-Saharan Africa, COL initiated collaboration with the In-Service Training Trust (ISTT) and the Directorate of Distance Education (DDE) at the University of Zambia.

ISTT is a training institution, initiated by the Ministry of Agriculture, Food and Fisheries (MAFF), Zambia, to provide a market-driven in-service training program to support the agricultural, environmental, and agroindustrial sectors in the SADC region. ISTT started as a project funded by the Canadian International Development Agency (CIDA). In June 1993, MAFF in collaboration with CIDA officially established ISTT as a semiautonomous institution.

Between 1995 and 1999, ISTT spearheaded a training program in crop management research and technology transfer on cowpea and soybean, in collaboration with the International Institute of Tropical Agriculture (IITA), Ibadan, Nigeria. ISTT also collaborated with local institutions such as the Department of Agricultural Research of MAFF, and the School of Agricultural Sciences at the University of Zambia.

The objective of the courses, conducted under the training program, was to strengthen research and extension capabilities of national agricultural research systems. During the five years in which the program operated, 75 research assistants and extension workers from SADC member states and East African countries participated in the training program.

Although the program was no longer offered, the demand for training still existed, as evidenced by numerous inquiries. The need to reach many research assistants and extension workers in the most cost effective and efficient manner required to modify the approach. Distance education was considered as an opportunity for extension workers to learn at their own pace, within their environment, and to immediately apply the acquired knowledge and skills. In effect, ISTT initiated distance learning in grain management for a regional food security program of SADC.

Through its international connections, The Commonwealth of Learning (COL) became aware of the training expertise of ISTT. COL is an international organization, created by Commonwealth Heads of Government, to encourage the development and sharing of resources and technologies for open learning and distance education. COL is helping developing nations improve access to quality education and training.

Thus COL contacted ISTT to complement and take advantage of ISTT's ongoing distance learning activities. COL and ISTT also took advantage of the experience and material on cowpea and soybean training, mentioned before. The institutions used e-mailing and teleconferencing to conceptualize and plan the project, and to implement the whole program.

For local distance learning expertise, COL and ISTT found a competent partner in the Directorate of Distance Education (DDE) at the University of Zambia. The mandate of DDE is to organize, coordinate, and administer all distance learning courses offered by various departments of the university of Zambia. DDE carries out its mandate through four sections, namely the Administration Section (Director's Office), the Course Materials Unit, the Student Services Unit, and the Research and Evaluation Unit. At present, the University of Zambia offers five degree programs and one diploma program through distance learning. DDE also provides consultancy and advisory services to a variety of education and training institutions.

A consultant with experience in agronomy, training, and communication - earlier working at IITA - established contact between the collaborators, and facilitated the subsequent activities.

COL and ISTT selected cowpea and soybean because of their low input requirements for production. The two crops are important in the production systems of small-scale farmers. The crops contribute to soil fertility, which in turn benefits subsequent crops. Cowpea is an important staple food for the people in the region. Soybean is not commonly eaten, however it is an important cash crop that is grown by many smallholder farmers in the region.

In March 2001, ISTT submitted a proposal on a distance learning program in food grain legumes with the goal to contribute to sustainable improvement of food security and alleviation of poverty, while maintaining resources and environment, through access to knowledge by distance learning. The program includes four phases. Phases one and two describe the preparation and organization of an initial planning workshop. Phases three and four explain implementation and follow up.

The Planning Workshop

Under the sponsorship of COL, from 24 September to 6 October 2001, ISTT conducted the initial planning workshop, included in Phase 2, under the title "Materials development for a distance learning program for agricultural education in Southern Africa".

Since distance education is new to people involved in agricultural research, training, and extension, it was important to train core teams that would later train others. Thus workshop organizers requested national institutions to suggest participants from research, training, and extension. Thirteen participants, including four women, came from Namibia (3 participants), Tanzania (3), Uganda (3), Zambia (3), and Zimbabwe (1). The participants represented governmental and non-governmental institutions, engaged in agricultural research, training, and/or extension. The countries were selected on the basis of the importance of food grain legumes in the diet of the human population.

Workshop organizers identified resource persons from the Ministry of Agriculture, Food and Fisheries and the University of Zambia, in addition to ISTT and COL.

The outcomes of the workshop were:

- drafts of distance learning materials on food grain legumes aimed at frontline extension workers
- a core group of national trainers for the implementation of these materials

The workshop enabled participants to:

- identify possibilities and constraints in the production and utilization of food grain legumes
- design distance learning programs and materials
- implement distance learning materials and programs

The workshop was highly participative. During an introductory exercise, participants concluded that their expectations agreed reasonably well with the pre-established workshop objectives. In country reports of 30 minutes per country (presentation + discussion), participants - in groups per country - informed resource persons and each other about their working situation: their function, agricultural education in the country, experience with distance learning, production of grain legumes in the country, etc.

As a basis for the following activities on distance learning, resource persons introduced subjects on cowpea and soybean: production in southern Africa, marketing, and utilization. Then, participants identified a series of opportunities and constraints for the production and utilization of food grain legumes in their countries, and clustered them into three areas, corresponding to three distance learning modules to be produced:

Module 1: Production, including nine units on importance of cowpeas and soybeans, morphology and physiology, climate and soil factors, land preparation, planting, soil fertility management, weed management, pest and disease management, harvesting

Module 2: Marketing, financing, postharvest handling

Module 3: Socioeconomic importance, utilization

During the following days, instructions, discussions, and exercises helped participants to accomplish their group assignments: the drafting of curricula and distance learning materials. Participants learned about principles of distance education, development of distance learning materials, and implementation of a distance education program. Participants produced course curriculum and outline. Then, groups concentrated on the draft units for Module 1. After considering various media, participants chose print medium for learning materials to effectively reach the final target audience: the farmers.

To emphasize the relationship of distance learning to production of food grain legumes, during a half-day field visit, participants learned about farmer perceptions. In preparing the field visit, participants - under the guidance of a resource person - discussed principles of informal surveys, and produced a checklist with questions. Before going to the field, during a role play, participants practiced and discussed a controversial scenario of the interaction between researchers and farmers. The lesson learned from the field visit was that farmers hardly had any access to information from outside their community. Participants concluded that distance learning materials would greatly help the extension personnel in providing information to farmers. Even literate farmers could take advantage of such materials. However, materials had to be simple in content, language, and format, but scientifically precise.

On the last workshop day, participants presented and discussed their draft units of Module 1. Then, they established a long-term follow-up work plan for the coming months.

A formative evaluation, through a continued activity evaluation, helped monitor and direct the workshop progress. At the end of each activity, participants evaluated knowledge acquired, usefulness, depth, presentation, training materials, and time. The evaluation also allowed for additional comments. The continued activity evaluation gave evidence of the excellence of resource persons. An initial overall comment - "It was a very fruitful day" - repeated itself in variations throughout the workshop.

A summative evaluation in the form of a final questionnaire covered all educational and logistical aspects of the workshop. This evaluation also demonstrated the satisfaction of participants. Major criticism, included lack of time and lack of secretarial assistance for the typing of drafts.

Follow-up Action

According to the follow-up work plan, after the workshop, and during the following months, participants continued to work on their draft units, based on the suggestions discussed at the end of the workshop. At the same time, participants initiated the units for Modules 2 and 3. To facilitate the involvement of participants for the follow-up activities, ISTT and COL requested the commitment of the home institutions of participants for logistical support, including time.

Using an e-mail listserv and teleconferencing, resource persons provided guidance to participants. The consultant preedited, standardized, and formatted the draft units, and facilitated the flow of manuscripts through e-mail between the collaborating institutions and the authors. Primarily DDE contributed to the evolution of the manuscripts.

A selection of units of Module 1 will be pre-tested with four test learners per country, or per region within a country. Learners will be representative for the intended audience: frontline extension officers from government, nongovernmental organizations, farmer associations, private businesses, etc. Learners will include women and men, older and younger people.

The pretest will cover the importance of cowpeas and soyabeans in the area; availability and cost of communicating using the internet; information regarding the language used at the location; appropriateness of the distance learning materials; interest to undergo distance education; and preparedness of employer to enable employees attend a distance learning program in which a certificate is issued.

Participants will receive general suggestions on how to conduct the pretest, one questionnaire for general information about the learner, and another questionnaire for specific information on the particular distance learning units. Nevertheless, participant are encouraged to use their individual style and experience in collecting the information.

A follow-up workshop is planned for discussion of the test results, for improving the draft units, and for planning a more formal pilot testing and wider program implementation.

Lessons Learned

The situation of food security in sub-Saharan Africa is critical. Additionally, farmers hardly have access to information on food production. Distance learning materials would greatly help the extension personnel in providing information to farmers. The need and opportunity for distance learning are evident.

The collaborating institutions of the distance learning program - COL, ISTT, and DDE - and the participants of the initial planning workshop contributed with interest and motivation to the establishment of distance learning curricula and materials to satisfy the demand.

Before and after the workshop, collaborators and participants communicated by e-mail. Also e-mailing was used to exchange manuscripts. E-mailing between the collaborating institutions worked reasonably well. However, e-mailing with participants was difficult. One reason may be poor internet connectivity. Lack of convenient and frequent access to telecommunications at affordable cost was a major constraint. Another reason might have been the unfamiliarity of participants with e-mailing.

Logistical obstacles make the early involvement of participants as the eventual users of distance learning difficult. Developing learning materials through intervention from outside experts might be easier. However, the project was deliberately based on participation and partnership to enhance pride and responsibility of ownership by the national collaborators. We expect that the effect will be more effective and longer lasting than the imposition of a program from the outside.

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