

Agricultural Education Developments In Northeast China

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Abstract

The object of this presentation is to outline a working model developed to implement an educational program in Heilongjiang province in northeast China. The model has five components consisting of non-degree and degree education, English language training, study tours, curriculum development, and procurement of equipment. The model is executed by a consortium consisting of three academic institutions financed by the Canadian International Development Agency. Consideration of this model may help others undertaking educational aid programs in a Third World country.

Introduction

Tangible evidence that links schooling to economic development has never been found; it is generally assumed, nevertheless, that the problems of poverty and food production can be resolved by appropriate educational programs (MacKinnon, 1985). With this thought in mind, an educational development project was undertaken in 1985 involving two Chinese academic institutions in Heilongjiang province in the extreme northeastern part of China. The program was initiated by the Chinese and was prompted by the setback in education in China brought on by the cultural revolution from 1966 to 1976. Canadian development assistance was requested with the objective of expanding the capacity of two institutions in Heilongjiang province to train managers and technical personnel for state farms. The two institutions involved are the Liu He Training College (LHTC) and the Heilongjiang Agricultural Land Reclamation University (HALRU). The former was established in 1983 for the purpose of providing a two-year training program and the latter in 1958 as a degree-granting institution.

The approach of the model itself was conceived largely by C.F. Bentley, formerly of the University of Alberta who led a project identification mission to Heilongjiang in 1983.

The design of this model recognized several aspects specific to the region. Foremost among these is the language barrier and the need for an interpreter. Other factors included Chinese policy changes of

economic structure which reduce the scope of planned economies in favor of market-oriented economics; the production responsibility system to emancipate the peasant from the land (De Wulf, 1985; Jian, 1985; Walker, 1985); the fact that for more than 3000 years before the age of industrialization, China had created a splendid culture; that 80% of China's population of over 1 billion live in the countryside where 40% have elementary school education and 30% are illiterate (Poon, 1984); and finally, the climatic limitations placed on agricultural production.

Recognition was given to the fact that world food production has increased to the point where record surplus grain stocks exist (Avery, 1985; Insel, 1984) and that the need for an immediate and rapid increase in food production is not critical. H.G. Wells once noted that, "human history becomes more and more a race between education and catastrophe," and past food shortages have made educational inputs peripheral to other objectives such as the use of genetically improved seeds and on-farm production practices characteristic of the green revolution era of the 1960s. Education of youth was regarded as too slow, as a generation is required to reap the results of these efforts. In 1985 opportunity existed to establish a model which emphasized a sound education program that addressed not only increased production but also long-term ecological and soil conservation problems.

The design of the model recognized our role as more than institutional development. Our task is to assist in the development of the province, regarded as China's breadbasket. The challenge is to implement a program of development, defined as a process by which societies change so that they are able to meet the basic needs of their populations in a way which is sustainable in the long term and which is based largely on indigenous resources and values.

Organization

There are six participants in the project: the two Chinese recipient institutions LHTC and HALRU; the funding agency, the Canadian International Development Agency (CIDA); the University of Alberta at Edmonton; Olds College at Olds, Alberta; and the University of Guelph in Ontario. To knit the group into one coherent force, the Black Dragon River Consortium was formed. Black Dragon is the translation of the Heilongjiang River, a major waterway in the province.

The inclusion of widely located institutions was done because of similarities in latitude and climatic conditions between the Canadian and Chinese regions and because of the crops commonly grown in each region. Heilongjiang, characterized by a continental climate with a monsoonal rainfall in July and August, is parallel to the continental climate of Alberta, has

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irrigation and soil salinity problems, and like western Canada produces wheat but also produces soybeans and corn (soybeans originated in northeast China) commonly grown in Ontario. The two-year educational program at LHTC suggested the involvement of institutions such as Olds College and Guelph with two-year applied agricultural programs.

A four-year contract was signed in April 1985 and activities were begun immediately.

The Model

Five activity inputs comprise the model and each is described in this section.

1. Degree and Non-Degree Training in Canada

Initially, the Chinese requested that junior faculty members from LHTC and HALRU directly enter M.Sc. and Ph.D. programs in Canada. The disruptions of the cultural revolution associated with destroyed records, or degrees not conferred had raised concerns about admitting candidates directly into graduate programs. Failure to complete a graduate program could result in embarrassment for the Chinese. This problem was resolved by establishing a one-year, non-degree or certificate program at the Canadian institutions. The purpose of this certificate program is to provide selected HALRU and LHTC scholars with flexible, focussed, education to supplement training already received.

Certificate programs are not a stopgap or preliminary phase to a master's degree. Rather, certificate programs represent a tailor-made course which will accommodate identified needs on the part of the Chinese students and which are carefully monitored during the year by individuals who are sensitive to the student needs at not only the academic level but at the applied and personal levels as well. Upon their return, certificate scholars will be expected to integrate what they have learned with the relevant course content of both their own courses and those of their colleagues.

All Chinese scholars who come to Canada, regardless of their academic rank or advanced degrees enter this certificate program. Since a one-year program is less expensive than graduate programs, more individuals are able to participate within a designated budget. Scholars are selected on the basis of age, farm experience and previous educational achievement in their scientific discipline.

A certificate of completion is issued to all who successfully complete the year, and those who qualify for graduate work are encouraged to continue. The major advantage of a certificate program is that students are evaluated for entry into graduate programs by courses offered at the respective institutions. Those who return to China at the conclusion of one year can do so with dignity and respect and are not regarded as failures.

Although the one-year program was reluctantly accepted in the initial stages by the Chinese, it has earned their respect. Some candidates will be

designated for non-degree programs before they begin study in Canada. Programs for such individuals may include audit courses, library assignments, participation in seminars, and courses in instructional techniques. Designated one-year students should not be burdened academically to the point where they cannot participate in departmental and cultural events.

Ten scholars came to Canada in the first year of the program, sixteen are scheduled for 1986-87. Perseverance with language barriers and long hours of study have resulted in acceptable grades and the majority of these candidates will enter graduate programs. The one-year certificate program has eased the transition into graduate school and completed courses will be used toward their M.Sc. program.

2. English Training in China and Canada

Contrary to the new world order that suggests North Americans should learn an oriental language, the BDRC model undertakes English training to prepare Chinese students for study in Canada. Training is provided at HALRU and LHTC to help upgrade the English instructors at these institutions. The Canada-China Language Training Centre (CCLTC) in Beijing is designed to immerse students in English. A strong desire to speak English has prompted many to participate in high school courses or to concentrate on language training through television.

Language training to a level necessary for technical and advanced lectures in the classroom is a more formidable task than conversational English. Certificate candidates appear to have a minimal level of language competence despite high scores given in China. The one-year, non-degree training program is useful to help such students reach a level needed for graduate study. A spin-off of English language training is greater accessibility to the world's literature. English books and journals are becoming welcome additions to the HALRU and LHTC libraries.

Chinese scholars in Canada are awed by large libraries but are capable of adapting to assignments based on a library search. It is hoped that as graduates return to their home institutions a more holistic view will be adopted toward library development and use.

Returning M.Sc. graduates will be expected to continue modernization begun at HALRU and LHTC by the one-year certificate students and curriculum development presenters. It is recommended that M.Sc. returnees be given access to research opportunities, in order to maintain their interest and initiative in the development of continuing curriculum improvements.

3. Study Tours

The objectives of the tours are to familiarize senior academic staff with Western agricultural sciences, including economics and management, to provide an improved basis for subsequent subject matter decisions within the project, and to prepare the way for acceptance of curriculum change. The tours are open

only to members of the teaching staff of HALRU and LHTC and will normally last thirty days and include four members and one interpreter. Study tour participants observe firsthand, production agriculture, product processing, distribution and marketing, research equipment and facilities in the laboratory and field thereby providing an excellent mix of theoretical and applied knowledge. Participants can review with faculty, specific research techniques, curriculum at the undergraduate and graduate levels and interact with students and researchers professionally and socially.

The formation of a consortium provides an opportunity for cooperation among the three Canadian institutions for more effective mobilization of a limited resource base in each institution. Thus, it is possible to enrich the study tours by the varied experiences that are offered from the three institutions. Mobilizing manpower at the time required is facilitated, as a single institution could be handicapped if it were conducting the study tour alone. In addition, each institution has its own areas of specialization, which can be appropriately deployed in terms of the identified building needs in China. Given the limited number of agricultural institutions in Canada, the cooperative approach being pursued by the Black Dragon River Consortium suggests a way to have effective utilization of a limited resource.

Each of the three institutions shares the responsibilities of hosting the group which requires considerable coordination so as to reduce duplication and to ensure areas of interest are adequately covered. Although well received by the participants, study tours are one of the most demanding aspects of the model.

To date, topics for study tours have included farm management, agricultural engineering, agronomy and animal science. More specific topics may be desirable.

4. Curriculum Development Activities

At the invitation of the participating Chinese institutions, Canadian faculty members deliver 12 to 14 seminars over a period of approximately 22 working days in China. The purpose is to inject intensive doses of new curriculum for assimilation into HALRU and LHTC courses pending the training of Chinese academic staff in Canada. Canadian participants are requested to send presentations six weeks in advance for translation into Chinese and for distribution at the time of the lecture.

Lecture presentations and discussions are intended for faculty rather than students. Some general lectures are repeated by popular demand for the benefit of larger groups including students who are anxious for an opportunity to interact with English speaking people.

The budget allows for the purchase of items such as books and projectors to enhance the presentations. All items are left for Chinese use.

Critics would argue that a 4-week visit to China is too brief and that a minimum of two years should be devoted to such an input. The advantages, however,

appear to outweigh the disadvantages. Short-term visits and an intense period of presentations have been well received by the Chinese who have adjusted their regular schedules to accommodate the Canadian visitor. The problems of isolation, severe winters, minimal disruption to research programs, moving personal effects, family considerations are minimized, and the fact that more topics can be covered by more people provides strong incentives for short-term and fast-moving programs. Experience after one year suggests the short-term approach is most satisfactory under the conditions and objectives of this project.

Topics are determined in consultation with the Chinese, and faculty are selected by the management committee of the consortium. Senior faculty with teaching and research experience are preferred so that presentations can be modified according to the response. Topics presented include plant breeding, agriculture mechanization, farm management, soil science, computer applications, and pedagogical techniques.

Notable among Chinese university students is a desire to break from the traditional style of education based on course content and rote learning methods, to a system that emphasizes concepts and student-faculty discussions. Where possible, case study methods are introduced, but patience and understanding are required to introduce a system that breaks with tradition and which has been developed in part from learning the complex and challenging Chinese alphabet and vocabulary. A statement by a student that Chinese youth were unhappy with being "fed like the duck" reflects the desire for change in traditional lecture methods, laboratory exercises and examinations.

5. Procurement of Equipment

It was evident from the start that the Chinese saw the project as an opportunity to equip their institutions with scientific instruments, teaching aids and field research equipment. The extent to which extensive lists could be met were severely curtailed by financial limitations. Items purchased are carefully considered and decisions are based on the principles that items useful to the greatest number of faculty in their teaching and research will receive priority and that good teaching thrives on research.

Conclusions

The strength of the model presented is based on the collective interaction of its five components. Since one input is no more important than another, the project cannot be evaluated by the success or failure of any single input or component thereof. Indeed, some inputs are more effective than others for a number of reasons but factors beyond human control such as unexpected illness and inability to complete an assignment are not as serious when numerous individuals are involved.

It is possible to measure inputs into an educational undertaking of this kind by the number of certificates

and degrees granted, the number of lectures delivered and other discrete parameters. It is more difficult to measure the impact of this project in terms of pedagogical changes, quality of graduate student research, impact on agriculture in Heilongjiang and economic returns. A lack of objective criteria for measuring success should not deter the project however.

Evaluation is a crucial component of the project to determine if an arrangement with six participants produces the level of confidence needed in satisfying an agreement between Canada and the People's Republic of China.

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IDEA SHARING SESSION

Oral Presentations

Management by Objectives System Evaluates Administrators Merit

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The University of Minnesota Technical College at Waseca has used a management by objectives (MBO) system within the college for many years. This system requires establishment of agreed upon collegewide goals and objectives from which each administrator develops specific MBO's. These objectives are annually, prepared, reviewed and revised by a committee and discussed and agreed upon by administrators, faculty, and staff collegewide. In addition, each administrator develops appropriate MBO's to meet the needs of the individual administrative unit, and these are agreed upon with supervisors.

After revisions are made, values are agreed upon for each objective. This value ranges from 1 to 10. Factors considered in determining the value relate to

the importance of the MBO to the college or administrative unit and whether the individual administrator will complete the objective alone or involve others to complete it successfully (primary or just monitoring responsibility). There has been collegewide agreement that some types of items (e.g. procedure development) are worth a set range of values.

During the year, the supervisor and administrator review the objectives together at least mid-year and perhaps more often, as is needed or desired by the administrator. Revisions of objectives may be made at this time and a standardized MBO form is used.

At the end of the year, each administrator reviews the MBO's and summarizes the accomplishments made during the year. There is a review session with the supervisor and agreement is reached on this summary. A supervisor then rates each of the objectives on a scale of 1 to 5. Objectives must be totally completed before they can be rated or counted.

Each administrator's position is divided into anchor expectations in responsibility areas of supervision, management functions (planning, organizing, staffing, directing and controlling) university service, committees, teaching, disciplined inquiry and professional development. These areas make up 100% of the individual positions and are the same for each administrator, but the percentage given to an individual is determined by the specific position. Ratings are also given by the supervisor for each of the responsibility areas evaluating performance of the routine aspects of the position.

After ratings are completed, values are multiplied by the performance ratings for each objective. The percent time in each responsibility area is multiplied by the performance rating for that area. The total of these scores provides the final rating score for each administrator.

Scores obtained on the MBO form are the primary input for determining merit and administrators are ranked according to score.

This system is still in the developmental stage. A primary benefit is evaluation on similar administrative criteria for all administrators.

How to Increase Student Motivation In the Classroom

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Motivating students to learn is an essential component of the teaching process. It enhances class participation, topic retention, and stimulates pursuit of meaningful career-oriented activities. Motivating students may be challenging and is often dependent on the instructor's own motivation and enthusiasm.