The Journal of International Agricultural and Extension Education is the official refereed publication of the Association for International Agricultural and Extension Education. The purpose is to enhance the research and knowledge base of agricultural and extension education from an international perspective.

Articles intended for publication should focus on international agricultural education and/or international extension education. Articles should relate to current or emerging issues, cite appropriate literature, and draw out implications for international agricultural and extension education. Manuscripts should not have been published or be under consideration for publication by another journal.

Three types of articles are solicited for the Journal - Feature Articles; Commentary Articles; Tools of the Profession Articles.

**Feature Articles**

Feature articles focus on philosophy, current or emerging issues, and the methodology and practical application of specific research and appropriate technologies, which have implications for developed and developing countries. Feature articles go through the Journal's blind review process utilizing peer reviewers to evaluate content and readability. Reviewers are usually selected from the membership of the AIAEE. In the blind review process all reference to author(s) is removed before the manuscript is sent to reviewers.

**Commentary Articles**

Commentary articles state an opinion, offer a challenge, or present a thought-provoking idea on an issue of concern to international agricultural and extension education, including a published article in the Journal. Commentary articles are reviewed by two members of the editorial board for appropriateness and relevance to the Journal, and for readability.

**Tools of the Profession Articles**

Tools of the Profession articles report on specific techniques, materials, books and technologies that can be useful to agricultural and extension educators in a global context and/or in a country/region. Tools of the Profession articles are reviewed by two members of the editorial board for appropriateness and relevance to the Journal, and for readability.

The Journal is distributed in one of three formats: printed copy ($25), computer disk ($15), or email ($10). Subscriptions should be made payable to AIAEE and mailed to Dr. Latif Lighari, Cooperative Extension System, The University of Connecticut, West Hartford Campus, 1800 Asylum Avenue, West Hartford, CT 06117.

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Journal of International Agricultural and Extension Education

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From the Editor

AIAEE's plan for the Journal included a publication goal of four issues a year. Four years old this year, the Journal marks an intermediate milestone on its way to this goal. From a modest start of two issues (spring and fall) in 1994, the Journal maintained this level through volume 3. The publication of three issues this year in volume 4 was made possible as a result of the decision to bring out an inaugural annual conference issue this past summer. The Journal's editorial board and AIAEE's leadership plans to continue the conference issue.

When we will reach our target of four issues per volume depends on several factors, including an assured stream of quality manuscripts, a manageable review/editorial load, a reasonable level of Journal subscriptions, and involved, interactive readers.

In my view, the volume of manuscript submissions will be the only significant limitation in reaching this goal. The Journal basically supports itself on generated funds, and there is no plan in the foreseeable future to raise subscriptions. We can realize our goal if more people would write for the Journal. Please share your scholarship with your colleagues by contributing articles in one or more of the Journal's sections - feature, commentary, and tools of the profession. In particular, commentary offers a forum to share provocative and insightful views on current and emerging issues in our disciplines and professions, the academic world, and development in general. Tools of the Profession is, in my judgment, the practice or application component of the Journal. This section can be an outlet for innovative ideas, methods and techniques, and reflective program experiences, in addition to reviews of books, reports, and developmental and education resources.

Several themes are addressed in this issue. The pervasive and timeless theme of human development-empowerment is the focus of several articles.

Ismail reports on how rural projects owned and operated by women in Malaysia contributed to increases in their income, employment, and participation in these projects. She advocates inclusion of women in technical assistance, and development efforts of government extension services, something that has not happened in the past. A similar argument for engaging women in extension education programs is voiced by Chizari, Lindner and Bashardoost. They point to the traditional subjugation of women in the cultures of developing countries, and prove their argument by showing why and how women who share a significant burden of rice production activities in a province of Northern Iran need to be included as participants and beneficiaries of these programs.

Reviews of publications in the Tools of the Profession section also highlight the value of human-centered development. Seven human development reports published by the United Nations Development Program from 1990-96 are summarized. These reports should be of interest to both scholars and practitioners in extension and development work. The idea of using a human development index that considers social and economic indicators as development criteria in contrast to gross national product, which uses economic criteria alone, to evaluate a nation's level of development is intriguing and challenging, and offers a truer and more realistic measure of development. Agung in his book "Developing the Third World: A Communication Approach" (1997) argues that development is meaningful only if it improves the human condition, emphasizes the great need for human-centered development in third world countries, and suggests that communication is the essence of development.
Extension systems around the world are changing. More and more, countries are moving toward privatized extension systems as public sector resources decline and philosophical shifts occur in the leadership of these countries. Two articles focus on this trend. Quispe describes the successes and weaknesses of a three-year old, self-managed system of production in Veracruz, Mexico, partially supported by Mexican government funds. The author suggests that despite implementation problems observed in the project, the local autonomy that has been fostered could lead eventually to a true privatized system. Rivera, Elshafie and Aboul-Seoud characterize Egypt's extension system as a pluralistic complex comprising a dominant public sector system and an emerging private sector component which is moving toward decentralized decision-making and operations, and a comprehensive, community development perspective.

Program design is the theme of two articles in this issue. Carey and Etling draw on the literature of rural appraisal and their experiences in using this technique of program development in several countries to propose a participatory rural design strategy. Düvel reviews work on behavior theories, and adds findings from empirical research, to substantiate an interdisciplinary model. He advocates use of this model to analyze needs, perceptions, and knowledge of clientele to plan change strategies affecting individuals, groups, and communities.

In the formal education setting, Dlamini and Sithole relate prior academic performance in a junior national certificate examination of agriculture students enrolled in Swaziland high schools to their demographic and school-related characteristics.

Included in this issue is the announcement for a new Journal editor for the next three-year term, 1999-2001. I have had a good experience, and would encourage those of you who have the desire to serve the association in a truly satisfying way to apply.

Also included is a list of those who helped review manuscripts. I am grateful to them. Their insight, competence, and professionalism continue to make our Journal better.
New Editor Search

The Board of the
Association of International Agricultural and Extension Education
announces the position of
EDITOR (1999-2001)
for the purpose of publishing
volumes 6, 7 and 8 of the
Journal of International Agricultural and Extension Education

Applicants should send seven copies of a current vita, a letter indicating qualifications as an editor and why they desire to have the position, and a letter from the department, organization or institution head indicating department, organization or institution support of the applicant. The letter from the head must address the specific support functions available for the candidate.

Materials should be sent before February 1, 1998 to:

Jan Henderson, President Elect
The Ohio State University
Agricultural Education Department
204 Agricultural Administration Building
2120 Fyffe Road
Columbus, OH  43210-1067
Call for Papers and Posters and Proposals for Sessions of the Joint Annual Meetings of the Association for the Study of Food and Society (ASFS) and the Agriculture, Food, and Human Values Society (AFHVS)

Golden Gateway Holiday Inn
1500 Van Ness Avenue
San Francisco, CA  94109
(415) 441-4000

June 4-7, 1998

The joint annual meetings of ASFS and AFHVS will bring together two multidisciplinary professional and scholarly societies for the purpose of broadly discussing contemporary issues relating to food, dietary, and nutritional behaviors; food and agricultural practices; ethical and values issues in food and agriculture; public policies toward food and agriculture; and the history, philosophy, social institutions, and values that underlie them.

Papers, posters, and proposals for panels are sought on any topic relating to agriculture, food, and society, including but not limited to the following: agricultural, food, fiber, and research practices and policies; food access, food security, food safety, and food equity concerns; agricultural sustainability and environmental quality; agricultural and food ethics; the social origins and social implications of agricultural technologies and practices; sociotechnical issues and controversies in agriculture and food (e.g., industrialization of livestock production, biotechnology, precision agriculture, farm animal welfare); food- and agriculture-related social movements; the roles of scientific and indigenous knowledge systems in the food system; the current status and future prospects of the land-grant and public agricultural research systems; regional/local food systems and urban/rural development; agricultural and nutrition education; food and the media; the cultural context of food, eating behaviors, food production, and rural life; and the global context of food production and distribution.

The deadline for abstracts, panels, and posters will be March 1, 1998.

Please submit abstracts to:

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Phone: (718) 997-4150
Fax: (718) 997-4163
Email: newman@qcvaxa.acc.qc.edu

Also send an email copy of the abstract to Richard Haynes: aghuval@nervm.nerdc.ufl.edu
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Robert Martin, Iowa State University

Henry Bahn, USDA - CSREES
Robert Maxwell, West Virginia University

Reid Bates, Louisiana State University
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Don Meaders, Michigan State University

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Shankar Chamala, The University of Queensland
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Michael Newman, Mississippi State University

Jim Diamond, The Pennsylvania State University
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Gustav Duvel, University of Pretoria
Lynn Pesson, CSLA Inc. (retired)

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Rama Radhakrishna, Clemson University

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Lynn Kennedy, Louisiana State University
Lakshman Velupillai, Louisiana State University

Mike Lambur, Virginia Tech
V. Venkatesan, World Bank

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Nancy Walker, The Pennsylvania State University

James Long, Washington State University
Moses Zinnah, Winrock International

(retired)
ACCOMPLISHMENTS OF RURAL WOMEN’S INCOME-GENERATING PROJECTS IN SELANGOR STATE, MALAYSIA

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Abstract

The purpose of this study was to determine accomplishments of women’s income-generating projects (WIGPs) in Selangor State, Malaysia. A sample of 54 women operating micro-enterprises were personally interviewed. Over one-half of the projects processed food from locally available raw materials. Tailoring, sundry businesses, handicrafts, and agriculture projects comprised the remainder. Significant project accomplishments were increase in household income, provision of employment to women and their families, and increased participation of women in project decisions and implementation activities. Project income was found to increase with increases in the amount of time women devoted to projects and level of assistance rendered by extension services of development agencies. The potential for women to contribute to the rural economy is significant. Women should engage in sustained, long-term economic development and seek out technical assistance and services.

Women in the Economy

A significant priority of the Government of Malaysia’s new economic policy initiated in 1971 was the intensification of rural development projects, and the emphasis on participation of women in a wide range of economic-based projects. Malaysia, following a similar trend in other countries, witnessed an increase in the participation of women in the overall labor force from 37.2% in 1970 to 46.7% in 1990 (United Nations, 1994). In the rural areas, 61.9% of women were classified as wage earners (Department of Statistics, 1990). They also played an important role as paid and unpaid workers in the subsistence and commercial farming sectors of the economy (Ismail, 1992; 1993).

A project-based approach involving women has been favored for promoting economic and social development. Moser (1993) cites women’s rural development projects for their impact on reducing poverty, promoting operational efficiency, opening up employment opportunities for women, and empowering women in terms of status, decision-making power and self-confidence. Furthermore, project-based development for women would make their productive work visible and give them greater political and economic strength (Moser, 1993). Tinker (1995) argues that women’s small-scale or micro-enterprises are alternative systems of production operating on the principle of human economy, in that their goal is to contribute to the education and health of the family with minimum emphasis on profit. This is based on the rationale that a greater proportion of women’s income compared to men’s income goes to meet family needs. Given the importance of women in the overall and rural labor force, and society in general, a project-based approach focused on generating income for women has been followed in Malaysia since the 1980s.
Women’s Income-Generating Projects

Women’s income-generating projects (WIGPs) are defined as an economic-based activity owned and operated by women on a small to medium level aimed at generating family income. WIGPs are synonymous with micro-enterprises or small-scale businesses for women. The primary goals of WIGPs are to increase household income, provide useful employment for women, and empower women to assume broader roles in society.

Rural development agencies in Malaysia, such as the Rubber Smallholder Development Authority, the Department of Agriculture, and the Farmers Organization Authority, have actively supported the involvement of women in rural micro-enterprises to promote economic development. Women in the agricultural sector are reported to have earned RM 4.5 million ($1 US=2.3 RM) a year from food processing projects at the village level (New Straits Times, 1994). Sarimah (1992), Masud and Paim (1995), and Ismail, Isa and Hashim (1995) reported that rural micro-enterprise projects benefitted women, and helped increase family income and living standards. These findings corroborate the results observed in other developing countries in terms of alleviating poverty, improving living standards, and empowering women with status and entry into the broader community (Dignard & Havet, 1995). Bhatt (1995) and Perera (1995) found in India and Sri Lanka, respectively, that WIGPs could be regarded as a means of alleviating poverty and accelerating progress toward better living conditions. Jiggins (1989) and Buvinic (1989) showed that WIGPs in the informal sector of the economy of sub-Saharan Africa offered women opportunities for entrepreneurship, and improvement of the economic status of rural women and their households.

The goal of WIGPs to create employment for women is as important as the goal of increasing their income. Berger (1995) found in developing countries of Asia and Africa that rural enterprise projects have potential for job creation, although on a smaller scale, than manufacturing and service activities. The jobs in these projects could be for other members of the family, other women living in the villages, or the project owners themselves. If the women who own the projects work in those projects themselves, the WIGPs are considered to be an avenue of self-employment in the informal sector.

The goal of WIGPs to empower women is seen as a personal and social benefit, increasing their status in and value to the family and the community. Hannan-Anderson (1995), studying empowerment in the Tanzanian WIGP context, defined it as behavioral changes in women which occurred as a result of the transfer of new knowledge and skills, and the development of solidarity among women involved in income-generating projects. The International Labor Organization (ILO) stated that WIGPs could create information networks and increase personal empowerment. Personal empowerment was defined as the ability of women to make decisions in various project activities, such as planning and implementing daily routines, managing workers, and marketing products. The ILO viewed training of rural women involved in income-generating projects as a means of furthering the goal of empowerment (ILO, 1986).

Selangor is one of fourteen states in Malaysia, situated on the west coast of Peninsular Malaysia. There are nine districts in the state with a population of 2.7 million, which is about 8% of the country’s total population of 20.1 million. Even though Selangor is fast developing as an industrial area of Klang Valley and is located near the Federal Territory of Kuala Lumpur, agriculture still predominates through oil-palm plantations and mixed commercial farming, as well as small-scale agriculture in traditional villages.

WIGPs are a common feature of the rural areas in Selangor as well as Malaysian states. Most WIGPs started after 1985, during the Fifth Malaysia Plan (1986-1990), a period in which the role of women in poverty eradication was
widely acknowledged, and social-based programs targeted toward women were changed to economic-based programs. According to Masud and Paim (1995), most WIGPs involved in small-scale enterprises produced snack food, fresh canned or bottled food, traditional cakes, handicrafts and agricultural produce. It is estimated that there were about 820 WIGPs under the purview of the Department of Agriculture alone (Masud & Paim, 1995). This study on rural WIGPs was conducted primarily because no work has been done to determine what these projects have accomplished.

**Purpose of Study**

The primary purpose of the study was to determine if WIGPs in Selangor provided income and employment for, and empowered women. A secondary purpose was to determine relationships between the income generated and characteristics of women participating in these projects.

**Methodology**

The study respondents were women participants of income-generating projects at the village level in three contiguous districts of Selangor, namely Kuala Langat, Sepang and Hulu Langat. These districts were chosen because they have been adopted as extension areas by the Universiti Pertanian Malaysia (UPM) since 1976, wherein UPM conducted experimental research and practical training for students. UPM is located in the neighboring district of Petaling. The total number of villages in the three districts was 122, comprising 180 women-owned projects.

Lists of names and addresses of women project-owners were obtained from each district office, and a sample of 54 women-owners was drawn to serve as study respondents. This number resulted from their availability during the data collection period and their willingness to be interviewed for the study. A survey instrument was developed consisting of questions eliciting information on details of the projects, such as types of businesses, support services provided by development agencies, number of workers employed, income generated, and suggestions for improving business performance. Information was also gathered on selected personal characteristics. Personal interviews were conducted in a period of three months from April to June, 1995.

The data were analyzed using the statistical package SPSS for MS Windows Release 6.0. Frequencies and means were used to summarize the descriptive data. Multiple regression analysis was performed to determine relationships between income generated by the projects and selected respondent characteristics.

**Findings**

**Characteristics of Respondents**

Table 1 summarizes respondent characteristics. The average age of respondents was 43.4 years, with a majority of the women (79.6%) being over 35. More than half had only primary education, with about the same proportions receiving lower (14.8%) and upper secondary (16.7%) education. Most were married (92.6%), but the average number of children (4.7) was below the national average of 7.2. The finding that 70.4% of the respondents had school-going children meant they had school-related expenditures.

**Types of Women’s Projects**

Women were involved the most in food processing projects (50.0%), followed by projects in tailoring (18.5%), businesses of various kinds (13.0%), and handicrafts and agriculture (9.3% each). The extent of participation of the respondents in specific types of food processing, business and agriculture projects, as well as the average length of time women were involved in the several projects are shown in Table 2.
Characteristics of Respondents.

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</table>
Project Accomplishments

Monthly Income. All respondents said that their involvement in the projects had contributed significantly to the monthly family income. The distribution of respondents in various income categories (Table 3) indicates that although a majority of the respondents (57.3%) received RM 500.0 or less, three women had incomes exceeding RM 3,500.0. The income of the remaining respondents was distributed between these extremes. The median monthly income was RM 500.0, and the mean RM 910.5. Mean monthly household income increased to RM 1695.4, when the incomes of husbands and children were added. This figure is considerably higher than the Malaysian household poverty line of RM 450.0 for a family with five children.

Employment. The distribution of respondents according to whether they worked in the projects by themselves, involved their families (husband and children) or hired outside workers is shown in Table 4. Seven respondents (13.0%) managed the projects by themselves. Twenty-two respondents (40.7%) were assisted by their husbands, and 16 respondents (29.6%) by their husbands and children. Nine respondents (16.7%) employed additional workers. The average number of persons working in the projects was 3.35, and the total number 181.

Table 2

Involvement of Women by Type of Project.

<table>
<thead>
<tr>
<th>Project</th>
<th>No. of respondents</th>
<th>% of respondents</th>
<th>Mean years of involvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Processing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cookies</td>
<td>12</td>
<td>22.2</td>
<td>4.4</td>
</tr>
<tr>
<td>Soya bean product</td>
<td>6</td>
<td>11.1</td>
<td></td>
</tr>
<tr>
<td>Chips (cassava, banana, yams)</td>
<td>4</td>
<td>7.4</td>
<td></td>
</tr>
<tr>
<td>Noodles</td>
<td>2</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>Chili sauce</td>
<td>2</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>Preserved food</td>
<td>1</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td>50.0</td>
<td></td>
</tr>
<tr>
<td>Tailoring</td>
<td>10</td>
<td>18.5</td>
<td>6.2</td>
</tr>
<tr>
<td>Business</td>
<td></td>
<td></td>
<td>7.9</td>
</tr>
<tr>
<td>Sundry shop</td>
<td>3</td>
<td>5.6</td>
<td></td>
</tr>
<tr>
<td>Restaurant/food stalls</td>
<td>1</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td>Direct selling</td>
<td>1</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>2</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>13.0</td>
<td></td>
</tr>
<tr>
<td>Handicraft</td>
<td>5</td>
<td>9.3</td>
<td>2.0</td>
</tr>
<tr>
<td>Agriculture</td>
<td></td>
<td></td>
<td>3.7</td>
</tr>
<tr>
<td>Vegetable</td>
<td>3</td>
<td>5.6</td>
<td></td>
</tr>
<tr>
<td>Nursery</td>
<td>2</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>9.3</td>
<td></td>
</tr>
</tbody>
</table>
Table 3

Distribution of Respondents by Income from Women’s Projects and Household Income.

<table>
<thead>
<tr>
<th>Monthly income (RM)</th>
<th>Project income</th>
<th>Household income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of respondents</td>
<td>% of respondents</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>\leq 500</td>
<td>31</td>
<td>57.3</td>
</tr>
<tr>
<td>501-1000</td>
<td>8</td>
<td>14.7</td>
</tr>
<tr>
<td>1001-1500</td>
<td>7</td>
<td>13.0</td>
</tr>
<tr>
<td>1501-2000</td>
<td>3</td>
<td>5.6</td>
</tr>
<tr>
<td>2001-2500</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2501-3000</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>3001-3500</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3501-4000</td>
<td>2</td>
<td>3.7</td>
</tr>
<tr>
<td>400 and above</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>Total</td>
<td>54</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Mean: 910.5
Median: 500.0
S.D.: 1031.3

Mean: 1695.4
Median: 1300.0
S.D.: 1383.4

Table 4

Distribution of respondents according to employment.

<table>
<thead>
<tr>
<th>Employment pattern reported</th>
<th>No. of respondents</th>
<th>% of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wife only</td>
<td>7</td>
<td>13.0</td>
</tr>
<tr>
<td>Wife and husband</td>
<td>22</td>
<td>40.7</td>
</tr>
<tr>
<td>Wife, husband and children</td>
<td>16</td>
<td>29.6</td>
</tr>
<tr>
<td>Hired worker</td>
<td>9</td>
<td>16.7</td>
</tr>
<tr>
<td>Total</td>
<td>54</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Empowerment. Empowerment was operationalized in this study as the ability of women to independently make and implement decisions. Table 5 shows the responses of study respondents to the question of who made and implemented decisions in various project activities. Respondents were asked to indicate which activities were decided/implemented more often than other activities by them and their husbands, singly and jointly. It was found that, in general, joint decisions were made by the wife and husband on most of the activities—expansion of projects, adoption of new technology, receiving income, saving income, and getting advisory and input services. Joint decisions were also made with regard to attending training, but once this was done only the women participated. Women made decisions on initiating projects, securing raw materials and marketing, and got help from their...
husbands in implementing these activities. The only activity in which wives did not make or implement decisions was record keeping.

**Relationship between monthly income and respondent characteristics**

The relationship between monthly income generated from women’s projects and selected respondent characteristics was studied using multiple regression analysis. The results are presented in Table 6. Six characteristics explained 36.97% of the variation in income, with the regression model being significant at the .05 level. Three characteristics, affiliation with local institutions, length of project involvement, and services received from extension agencies were significantly related to income.

The negative beta coefficient for the variable, affiliation, means that women who made more money from projects were less involved in local institutions. This could be due to the fact that to derive more income from projects women had to devote a greater share of available time to working with their projects.

Beta coefficients for the variables, length of project involvement and services received from extension agencies, were positive. This implies that the longer women had worked with the projects and the greater the number of services received from extension agencies, the greater was the income generated from projects.

**Suggestions to improve performance of projects**

Although projects were doing well, many respondents believed there was room for improvement. Table 7 lists their suggestions for improving project performance. Most frequently mentioned suggestions were their need to attend training, receive technical and financial assistance, have a wider market coverage for their products, and receive advisory services.

**Table 5**

**Participation of Women and Men in Project Activities.**

<table>
<thead>
<tr>
<th>Activities</th>
<th>Wife only</th>
<th>Wife and husband</th>
<th>Husband only</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DM</td>
<td>I</td>
<td>DM</td>
</tr>
<tr>
<td>Initiation of project</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Expansion of project</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Adopting new technology</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Getting advice/input and services</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Attending training</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Keeping records</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Getting raw materials</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Marketing products</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Receiving income</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Saving income</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

DM: Decision Making  
I: Implementation  
X: Who participated in the activity “more often” than the other person
Table 6

Regression Analysis of Women’s Income from Projects.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Beta</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affiliation with local institutions</td>
<td>-0.324</td>
<td>.0216*</td>
</tr>
<tr>
<td>Length of project involvement</td>
<td>0.4930</td>
<td>.0003**</td>
</tr>
<tr>
<td>Services received from extension agencies</td>
<td>0.4900</td>
<td>.0039**</td>
</tr>
<tr>
<td>Educational attainment</td>
<td>0.0969</td>
<td>.0542</td>
</tr>
<tr>
<td>Age</td>
<td>-0.0661</td>
<td>.6688</td>
</tr>
<tr>
<td>Number of workers employed</td>
<td>-0.235</td>
<td>.8757</td>
</tr>
</tbody>
</table>

Multiple R  = .6080
R Square    = .3697
Adjusted R Square = .2892
Standard Error  = 869.510

Analysis of Variance (ANOVA)

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>6</td>
<td>20839699.7</td>
<td>3473283.3</td>
</tr>
<tr>
<td>Residual</td>
<td>47</td>
<td>35534281.8</td>
<td>756048.5</td>
</tr>
<tr>
<td>F=4.5475*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p ≤ .05
** p ≤ .01

Table 7

Suggestions for Project Improvement.

<table>
<thead>
<tr>
<th>Suggestion</th>
<th>No. of respondents</th>
<th>% of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attend relevant training</td>
<td>17</td>
<td>31.5</td>
</tr>
<tr>
<td>Technical input assistance</td>
<td>16</td>
<td>29.6</td>
</tr>
<tr>
<td>Financial assistance</td>
<td>16</td>
<td>29.6</td>
</tr>
<tr>
<td>Wider marketing coverage</td>
<td>15</td>
<td>27.8</td>
</tr>
<tr>
<td>Need advisory services</td>
<td>14</td>
<td>25.9</td>
</tr>
<tr>
<td>Support from family/husband</td>
<td>9</td>
<td>16.7</td>
</tr>
<tr>
<td>Increased productivity and quality</td>
<td>4</td>
<td>7.4</td>
</tr>
<tr>
<td>Group cohesiveness</td>
<td>3</td>
<td>5.6</td>
</tr>
<tr>
<td>Production of own raw material</td>
<td>2</td>
<td>3.7</td>
</tr>
</tbody>
</table>
Conclusions

Rural women have the opportunity to get involved in a variety of micro-enterprises. The study found that women’s projects involved food processing, retail businesses, agriculture, tailoring and handicrafts. The preponderance of food processing projects suggests a natural extension of women’s domestic duties. However, active involvement in other types of projects indicates entrepreneurial ability and broader interests.

Women’s projects are capable of generating significant additional income for rural families. This conclusion is supported by the finding that the share of the mean reported household monthly income (RM 1695) derived from women’s projects was RM 910, or more than one-half.

Women’s projects have the potential of providing gainful employment for the whole family as well as hired labor. This conclusion is supported by the finding that 181 persons (wives, husbands, children and paid workers) were employed in the 54 projects included in the study. Women not only owned the projects but also worked in them, which Lumayag (1995) says is what micro-entrepreneurs are - both managers and owners.

Women’s projects can empower women to make and implement entrepreneurial decisions on their own. At the same time, women will have the continuing need to depend upon their husbands for support. This conclusion is borne out by the finding that in a majority of key project activities, wives and husbands made joint decisions and acted together on these decisions. It would appear that women and men need to have equal influence and mutually support each other for the project to grow and be successful. In a few activities, women acted independently. For example, they decided on their own to attend training meetings organized by development agencies, since husbands were not interested in such training.

Income generated from women’s projects is likely to increase as more time is devoted to project work and greater assistance is received from development agencies and extension services. This conclusion is based on the statistically significant relationship observed in the study between project-generated income and the variable indicated. This would suggest an active role for women in terms of sustained, long-term project participation and seeking out technical assistance and services.

Implications

The preponderance and active participation of women in food processing projects implies that women have the potential to increase their activities to an entrepreneurial level. Development agencies providing services to WIGPs should have a mission to transform these projects into more successful enterprises and help women become entrepreneurs engaging in diverse service-oriented enterprises. Family-based projects should be explored as a means of enhancing community development. Periodic research studies should be conducted to examine the actual contribution of WIGPs to the rural economy at both micro and macro levels.

References


PARTICIPATION OF RURAL WOMEN IN RICE PRODUCTION ACTIVITIES AND EXTENSION EDUCATION PROGRAMS IN THE GILAN PROVINCE, IRAN

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Abstract

Iran’s northern provinces, including the Gilan Province, comprise 26% of the nation’s farmland. Although dramatic and widespread increases in rice yields have been achieved, Iran is still dependent on rice imports. More than 75% of rural women in the Gilan Province are engaged in agricultural activities. But, Iran’s extension service has been ineffective in reaching rural women farmers. In particular, limited access to extension programs by women rice producers has restricted further gains in rice production. Factors associated with participation of rural women in rice production activities in the Gilan Province were studied. Using cluster sampling procedures, 142 rural women farmers were selected. It was found that size of rice field, income, and education levels of rural women farmers affected their participation in rice production activities. Opportunities for the extension service to better meet the unique educational and technological needs of rural women rice farmers are suggested.

Introduction

Historians believe that women domesticated crop plants, thereby initiating the art and science of farming (Satio & Weidman, 1990). While men went hunting in search of food, women gathered seeds from the native plants and began cultivating those of interest for food, fiber and fuel.

A study conducted by Poats (1990) emphasized the importance of rural women's participation in agricultural activities and food production. Even in countries where farm families are male-dominated, drastic changes in cropping practices take place because of female influence (Lionberger & Gwin, 1990).

Although women are engaged in a wide range of agricultural activities in many developing countries they continue to be systematically subjugated, undervalued and unrecognized. In
some parts of the Islamic Republic of Iran, particularly in the northern provinces, women play a prominent role in agricultural activities. The northern provinces of Iran include Gilan, Mazandaran, East Azarbaijan, and West Azarbaijan. They comprise 10% of Iran’s land, 26% of the agricultural farmland, and 23% of the population. In the northern provinces, 75% of rural women are actively involved in agricultural activities (Mirikhoozani, 1993). Women’s participation in agricultural activities is higher in the Gilan Province.

Most women farmers in Iran have limited access to extension programs designed to increase farm productivity and income. Because the official census in Iran only counts heads of farm households, who are males, the unpaid responsibilities of women farmers are not recorded. As a result, the needs of women farmers are not being addressed in extension education programs (Mirikhoozani, 1993).

Women farmers, who are also responsible for household and child rearing duties, are often not included in education programs (Van den Ban & Hawkins, 1988). Inclusion of women in education and training programs will result in increased agricultural production (Van den Ban & Hawkins, 1988). According to Buford, Bedeian and Lindner (1995), ensuring equal access to and participation in extension education and training programs by minorities and diverse groups is an essential role of an extension service. These authors maintain that extension services are expected to be socially responsible and should be held accountable for their actions. If the needs of women farmers and other disadvantaged groups are to be served effectively, extension services need to develop specific programs and mechanisms targeted to the specific needs of women farmers (Swanson, 1990). Participation in extension programs is necessary for women to gain access to current production methods and technology (Satio & Weidman, 1990). Women farmers, particularly those in female-headed farm households, have different technological and educational needs than do similarly situated male farmers (World Bank, 1990). Women have many demands on their time and few resources, which results in low levels of productivity.

Rice is an ancient and staple food for over half the people of the world. After wheat, rice is the main source of food in Iran. Although dramatic and widespread increases in rice yields have been achieved within a 14-year period in 13 provinces, Iran is still dependent on rice imports. The Gilan Province with 730,000 hectares is the leading producer of rice in Iran.

Poor extension education efforts and lack of training for female farmers have restricted further gains in rice production in the Gilan Province (Moetamed, 1993). The extension service has an opportunity to make a substantial positive impact on the production of rice by including women in training and education programs. Extension educators need to understand the inevitable role and importance of rural women’s participation in rice production (Moetamed, 1993).

Purpose

The purpose of this study was to determine the level of participation of rural women in selected rice production activities and extension education programs in the Gilan Province of Iran. Specifically, the study sought to determine differences in participation of women farmers in the production of rice by their age, size of rice field, annual household income, level of education, and participation in extension education activities.

Methodology

The research design for this study employed a descriptive survey method. The target population included rural women farmers in the Gilan Province, Iran. Cluster sampling procedures were used to draw the sample. Gilan Province has 11 townships, and each township has 6 villages. Two townships, Somaesara and Kasht, were randomly selected. Then, four villages were chosen at random from each township, or a total of eight villages was
included in the sample. From each village, 20 women involved in rice farming were randomly selected. Therefore, the targeted sample was 160 rural women. During the interview process, however, the researchers only had access to 142 women, since 18 women would not participate due to cultural practices and religious beliefs.

A questionnaire was developed from the review of literature. Data were collected through personal interviews with women farmers in the rice fields. The questionnaire included both open-end and fixed-choice questions. Open-end questions were used to gather information not covered by the fixed-choice questions, and to encourage participants to provide feedback. Face and content validity of the instrument were established using an expert panel of three faculty members in the Department of Agricultural Extension, Tehran University, Iran. The instrument was pilot-tested with 15 rural women in two townships which were different from the study townships. As a result of the pilot test, minor changes in wording were made in the questionnaire.

The dependent variable in the study was level of participation of rural women in rice production. Three rice production activities were followed, i.e., sifting and cleaning seeds, harvesting rice, pulling off crucible seedlings from nursery plots. For each activity, the level of participation of women was categorized and graded as follows:

<table>
<thead>
<tr>
<th>Extent to which activity is done by women/men</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only done by women</td>
<td>100</td>
</tr>
<tr>
<td>Mostly done by women</td>
<td>80</td>
</tr>
<tr>
<td>Done equally by women and men</td>
<td>50</td>
</tr>
<tr>
<td>Mostly done by men</td>
<td>20</td>
</tr>
<tr>
<td>Done only by men</td>
<td>0</td>
</tr>
</tbody>
</table>

Each respondent in the study received grades for all three activities to reflect the extent of participation. The dependent variable was analyzed for (a) frequency distribution for each practice on extent of participation, (b) mean participation score for each practice and overall participation score for all three practices, and (c) analysis of variance of overall participation in rice production activities compared to selected independent variables of respondent characteristics, i.e., age, size of rice field, annual household income, level of education, and participation in extension education activities.

The analysis of variance procedure was used to test five null hypotheses of no difference between level of participation of women in rice production in Gilan Province and age (H_{01}); size of rice field (H_{02}); annual household income (H_{03}); level of education (H_{04}); and participation in extension education activities (H_{05}). The alpha level for statistical significance was set \textit{a priori} at .05. The analyses were done with the Statistical Package for Social Sciences (SPSS, Inc., 1986).

**Findings**

**Characteristics of Respondents**

The age of women farmers in this study ranged from 16 to 69 years. Twenty-three percent of them were 30 years or younger, and a majority (51%) were 40 years or older. More than 90% of the respondents were married, 2% were widowed, and 5% were divorced. More than 66% of the respondents had three or more children. Ten percent of the respondents stated that their rice field was three hectares or larger. More than 75% of the respondents said that their household income was 20 million rials or less per year (1 U.S. dollar = 3,000 rials, approximately). A majority of the respondents (51%) were illiterate, 30% had an elementary education, 11% secondary, and 8% post-secondary and higher.

**Participation in Rice Extension Education Programs**

Sixty-five respondents (46%) said they had participated in rice extension education programs. The extent of participation in the different programs is shown in Table 1. The highest level of participation was in the land preparation program (n=20, 30.9%) and the
lowest (n=3, 3.9%) in each of the water management, fertilization, and pest and disease control programs.

**Participation in Rice Production Activities**

Table 2 shows the participation of women farmers in selected rice production activities. Over 40% of the respondents indicated that sifting and cleaning was done solely by women, and nearly 34% indicated it was done equally with men. By contrast, 65.4% of respondents indicated that harvesting was done equally by women and men, and none of the respondents said harvesting was done only by or mostly by women. Nearly 35% of the respondents indicated that pulling off crucible seedlings from nursery plots was done solely by women, and 27.4% indicated it was done equally by women and men.

The mean participation scores for the three practices shown in Table 3 indicate that women did much of the work of sifting and cleaning seeds, and pulling off crucible seeds from nursery plots, but did much less in the harvesting of rice.

**Differences in Participation of Women in Rice Production Activities by Selected Characteristics**

One-way analysis of variance is used to test for statistically significant differences in means, when only one independent variable is manipulated (Borg & Gall, 1983).

The first hypothesis in this study was to test for statistically significant differences in level of participation of rural women in rice production activities by age. At an alpha level of .05, the null hypothesis was not rejected, $F_{(3, 138)} = 1.70$, and it was concluded that age did not have a significant effect on participation.

The second hypothesis was to test for statistically significant differences in the participation of women in rice production activities by size of rice field. At an alpha level of .05, the null hypothesis was rejected, and it was concluded that size of rice field had a significant effect on participation. As shown in Table 4, the mean participation score was highest for women with one hectare or less (63.7), and lowest for those with more than three hectares (52.1).

The third hypothesis was to test for statistically significant differences in the participation of women in rice production activities by income. At an alpha level of .05, the null hypothesis was rejected, and it was concluded that income had a significant effect on participation. As shown in Table 5, the mean participation score was highest for women in the income category 10 million rials per year (64.7), and lowest for those in the income category of more than 30 million rials (49.7).

The fourth hypothesis was to test for statistically significant differences in the participation of women in rice production activities by level of education. At an alpha level of .05, the null hypothesis was rejected, and it was concluded that level of education had a significant effect on participation. As shown in Table 6, the mean participation score was highest for women with an elementary education (59.7), and lowest for those who had post-secondary education (51.9).

The fifth hypothesis was to test for statistically significant differences in the participation of women in rice production activities by their participation in extension education programs. At an alpha level of .05, the null hypothesis was not rejected, $F_{(1, 140)} = 0.04$, and it was concluded that participation in extension education programs did not have a significant effect on participation.
Table 1

Participation of Women Farmers in Rice Extension Education Programs.

<table>
<thead>
<tr>
<th>Program</th>
<th>Number of participants</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land preparation</td>
<td>20</td>
<td>26.0</td>
</tr>
<tr>
<td>Selection of seeds</td>
<td>13</td>
<td>16.9</td>
</tr>
<tr>
<td>Nursery preparation</td>
<td>9</td>
<td>11.7</td>
</tr>
<tr>
<td>Weeding</td>
<td>8</td>
<td>10.3</td>
</tr>
<tr>
<td>Transplanting</td>
<td>7</td>
<td>9.1</td>
</tr>
<tr>
<td>Sowing</td>
<td>7</td>
<td>9.1</td>
</tr>
<tr>
<td>Nursery maintenance</td>
<td>4</td>
<td>5.2</td>
</tr>
<tr>
<td>Water management</td>
<td>3</td>
<td>3.9</td>
</tr>
<tr>
<td>Fertilization</td>
<td>3</td>
<td>3.9</td>
</tr>
<tr>
<td>Pest and disease control</td>
<td>3</td>
<td>3.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>77\textsuperscript{a}</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

\textsuperscript{a}Total exceeds 65 women farmers because some of them participated in more than one program.

Table 2

Participation of Women Farmers in Selected Rice Production Activities.

<table>
<thead>
<tr>
<th>Level of participation</th>
<th>Sifting and cleaning</th>
<th>Harvesting</th>
<th>Pulling off crucible seedlings from nursery plots</th>
<th>Average (n=426)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Only done by women</td>
<td>58</td>
<td>40.8</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Mostly done by women</td>
<td>18</td>
<td>12.8</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Done equally by women and men</td>
<td>48</td>
<td>33.8</td>
<td>93</td>
<td>65.4</td>
</tr>
<tr>
<td>Mostly done by men</td>
<td>4</td>
<td>2.8</td>
<td>24</td>
<td>16.9</td>
</tr>
<tr>
<td>Done only by men</td>
<td>14</td>
<td>9.8</td>
<td>25</td>
<td>17.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>142</strong></td>
<td><strong>100.0</strong></td>
<td><strong>142</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
Table 3

Mean Participation Score of Women Farmers in Selected Rice Production Activities.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Mean participation score&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sifting and cleaning seeds</td>
<td>68.45</td>
</tr>
<tr>
<td>Pulling off crucible seeds from nursery plots</td>
<td>64.72</td>
</tr>
<tr>
<td>Harvesting</td>
<td>36.11</td>
</tr>
<tr>
<td>Overall</td>
<td>56.42</td>
</tr>
</tbody>
</table>

<sup>a</sup>100=only done by women; 80=mostly done by women; 50=done equally by women and men; 20=mostly done by men; 0=done only by men.

Table 4

Participation of Women in Selected Rice Production Activities by Size of Rice Field.

<table>
<thead>
<tr>
<th>Size of rice field&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Mean participation score&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 1 hectare</td>
<td>63.7</td>
</tr>
<tr>
<td>&gt; 1 - 2 hectares</td>
<td>56.8</td>
</tr>
<tr>
<td>&gt; 2 - 3 hectares</td>
<td>53.1</td>
</tr>
<tr>
<td>&gt; 3 hectares</td>
<td>52.1</td>
</tr>
</tbody>
</table>

<sup>a</sup>1 hectare = 2.47 acres.

<sup>b</sup>100=only done by women; 80=mostly done by women; 50=done equally by women and men; 20=mostly done by men; 0=done only by men.

Table 5

Participation of Women in Selected Rice Production Activities by Annual Income.

<table>
<thead>
<tr>
<th>Annual income (million rials)&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Mean participation score&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>64.7</td>
</tr>
<tr>
<td>&gt; 10 - 20</td>
<td>57.3</td>
</tr>
<tr>
<td>&gt; 20 - 30</td>
<td>53.9</td>
</tr>
<tr>
<td>&gt; 30</td>
<td>49.7</td>
</tr>
</tbody>
</table>

<sup>a</sup>1 U.S. dollar = 3,000 rials, approximately.

<sup>b</sup>100=only done by women; 80=mostly done by women; 50=done equally by women and men; 20=mostly done by men; 0=done only by men.
Table 6

Participation of Women in Selected Rice Production Activities by Level of Education.

<table>
<thead>
<tr>
<th>Level of education</th>
<th>Mean participation score&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illiterate</td>
<td>55.4</td>
</tr>
<tr>
<td>Elementary</td>
<td>59.7</td>
</tr>
<tr>
<td>Secondary</td>
<td>58.4</td>
</tr>
<tr>
<td>Post-secondary</td>
<td>51.9</td>
</tr>
</tbody>
</table>

F<sub>(3, 138)</sub> = 4.35.

<sup>a</sup>100=only done by women; 80=mostly done by women; 50=done equally by women and men; 20=mostly done by men; 0=done only by men.

Conclusions

Based on the findings of this study, the following conclusions were drawn.

Women farmers play an important role in producing rice in the Gilan Province, Iran. This was borne out by the finding that women did most of the work in two of the three practices, namely sifting and cleaning seeds, and pulling off crucible seedlings from nursery plots, and some of the work in the third practice, i.e., harvesting of rice. The reason for lower participation in harvesting is that the culture of rural society requires that all family members participate.

Despite the important role of women in rice production observed in this study, their participation in extension education programs is low. Study findings showed that less than half of the respondents had participated in extension education programs. Furthermore, their participation in specific programs ranged from 4 to 30%. Low participation in extension education programs is due, in part, to lack of women agricultural agents, and the religious beliefs that make women uncomfortable talking with men.

The level to which women participate in rice production activities is related to size of rice field, annual household income, and level of education, but unrelated to their age, and participation in extension education activities.

This conclusion is based on the finding that women who had the smallest rice fields (1 hectare or less), the least annual income (10 million rials) and the highest level of education (post-secondary or higher) had the lowest participation scores compared with women who had larger sized rice fields, greater incomes, and less education. The implication of this finding is that the extension service in Iran has the opportunity to design education programs to meet the needs of rural women rice farmers operating small farms, with a low level of income. Women at varying education levels also need the assistance of the extension service.

Very little research has been done on women farmers in Iran. Research findings, such as those reported in this study, can assist the extension service and government officials make decisions about resource allocations, and the education and technology needs of women farmers. The results of this study may also help guide extension agents in the Gilan Province of Iran in preparing and conducting better education programs.

References


CONSTRUCTING AND CONDUCTING RURAL APPRAISALS

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Abstract

Rural appraisal, rapid appraisal, and participatory rural appraisal are terms used for methods of village needs assessment, resource assessment, and evaluation. These terms have generated considerable interest and some confusion recently since a variety of techniques have been used and misused. This article looks at rural appraisal as a category consisting of two methodologies - rapid appraisal and participatory rural appraisal. Different techniques that have been included under both methodologies are described. A design kit section describes how a rural appraisal strategy can be developed for specific situations. The design kit emphasizes flexibility and practicality, and suggests guidelines to insure that the needs identified will result in an action plan to resolve the problems of individuals most directly affected. Examples from rural appraisals conducted by the authors in Pennsylvania, Zimbabwe, Puerto Rico, and Costa Rica are included.

Introduction

Rural appraisal, rapid appraisal, and participatory rural appraisal are terms that have become widespread in the last ten years. For some individuals these terms are buzz words with only vague meanings. For some quantitative researchers they are just another excuse for not using a rigorous study to collect and analyze data correctly. For some field workers, on the other hand, rural appraisal promises a middle ground between two undesirable extremes. At one extreme is the quantitative study that takes too much time and money, that relies too heavily on statistical procedures and too little on common sense, and that sits on a shelf somewhere outside the local site where the information is needed. At the other extreme is the superficial assessment made by a quick trip to the site or a recording of prejudices from an office in the capital city.

In this article rural appraisal is defined and clarified. Some suggestions about when to use rural appraisal are made. Alternative approaches to rural appraisal are discussed. Issues in planning for a rural appraisal are presented. Then a design kit is discussed to help field workers conduct a needs assessment in particular locations with flexibility and attention to unique local conditions.
Clarifying Confusing Terms

Rural appraisal is understood to be a category of resource assessment or needs assessment methods. Two of these methods are rapid appraisal and participatory rural appraisal (PRA). Both rapid appraisal and PRA are methods of obtaining grassroots knowledge with an interdisciplinary focus. Rapid appraisal is more flexible than PRA, a specific method developed by Gordon Conway and Robert Chambers. Derived from rapid appraisal, PRA was developed to assess village resources in Kenya to implement "...socially acceptable, economically viable, and ecologically sustainable development" (World Resources Institute, 1990, pp. 2-5). PRA consists of eight clearly defined steps. While the two methods are similar in many ways, rapid appraisal emphasizes speed, low cost, and flexibility, while PRA emphasizes participation of local (village) people in a process carefully structured to insure participation.

Popularity of Rural Appraisals

A number of presentations at the annual conference of the Association for International Agricultural and Extension Education reflect a growing interest in rapid appraisal and PRA among rural development workers, academics, and representatives of non-governmental organizations (Elliot & Martin, 1989; Mutimba, 1996; Smith, Etling & Diamond, 1991; Woog, Kelleher & Turner, 1992). A glance at publication lists of international development agencies also demonstrates growing interest. A recent World Bank study, Rapid Appraisal Methods (Kumar, 1993), reviews techniques and issues associated with rapid appraisal.

In addition to rural appraisal experiences in other countries, the authors have taught and led rural appraisals as a field component of a university class on problem solving in tropical agriculture. This course included a field trip to Puerto Rico to assess the needs of limited resource farmers. Rapid appraisal and PRA were used, on different field trips, as the primary needs assessment method to teach students, and to assist limited resource farmers and the agencies that assist them, namely Soil Conservation Service, Puerto Rico Department of Agriculture, and Cooperative Extension Service. University students, Puerto Rican farmers and agency personnel have found rural appraisal to be an interesting process with useful outcomes.

What is Rapid Appraisal?

A rapid appraisal is an initial effort to gain some understanding about a specific rural situation to make immediate decisions or plan more extensive projects. It is a collage of snapshots of problems, needs, and opportunities at a particular time. It looks at the relationships among livestock, crops, management, markets, household and family characteristics, social interactions, and cultural information. Rapid appraisal is tailored to the local situation and does not follow a structured methodology. The objectives of the rapid appraisal are clearly identified, and the design of the rapid appraisal process is aimed at accomplishing those objectives. These objectives guide the selection of team members who will conduct the rapid appraisal.

According to Beebe (1985), different names have been used for rapid appraisal, including:

1. **Sondeo**. A team gathers descriptions of local farm operations to identify new technology for trials on farmers' fields. This method allows flexibility to pursue various lines of discussion.

2. **Exploratory survey**. A series of interviews using a very detailed checklist of questions is done. The list is so extensive that not all questions are asked of all farmers, but a composite is made later. The results are used to diagnose farm problems and opportunities for farm trials.

3. **Reconnaissance survey**. This is an informal method of collecting data for decisions related to possible field trials, and as a means of developing teamwork. It is a general approach...
with the flexibility to use both the sondeo and exploratory survey methods.

4. **Informal agricultural survey.** This technique emphasizes observation as a way to gain information and experience. It focuses more on the study process than the content.

5. **Rapid reconnaissance.** This method emphasizes participatory approaches using quick, impressionistic data collection to study the organization and management of rural development efforts.

Rapid appraisal is especially useful, according to Kumar (1993), when (a) descriptive information is desired, such as economic conditions of an area, (b) it is important to learn about the motivations and attitudes that affect a population's behavior, (c) available quantitative data are to be interpreted or inconsistencies need to be resolved, (d) a study's purpose is to generate recommendations/solve problems or provide direction, or (e) there is a need to develop new challenges and proposals for formal, more elaborate studies.

Kumar (1993) identifies five techniques that may be used separately, or in combination, as the core of a rapid appraisal.

1. **Key informant interviews.** From 10 to 25 informants who can provide the desired information and insights are interviewed using a structured list of questions.

2. **Community/group interviews.** The investigator interacts with a larger group (over 15) of villagers in an open public meeting. The moderator insures representation of women and minorities, asks relevant questions, ensures participation by all present, and records the proceedings.

3. **Structured direct observation.** Data are carefully gathered using structured observation criteria. The use of a team with diverse topical expertise is better than a single individual.

4. **Informal surveys.** An open-ended questionnaire is used in interviewing 25 to 50 people, often at convenient locations such as a market or other meeting place.

5. **Focus group discussions.** From 8 to 12 participants representing a target group are immersed in a one to two hour discussion on an issue. Participants discuss the issue freely. A focus group leader is prepared to ask questions related to the issue if participant input lags (Etling & Maloney, 1995, pp. 42-47).

**What is Participatory Rural Appraisal?**

PRA follows eight steps that are mostly similar to rapid appraisal except that local people/stakeholders are full participants, along with the appraisal team, in determining the conclusions and recommendations, and in identifying and ranking problems and opportunities. In addition, there is an emphasis on creating a community development plan to be implemented by the community, with assistance from appropriate officials, agencies, organizations, and stakeholders from the private sector. The eight steps of Participatory Rural Appraisal (Ford, 1989) are (a) site selection and clearance from local officials, (b) preliminary site visit, (c) data collection, (d) data synthesis and analysis, (e) problem identification and listing of possible opportunities/solutions, (f) ranking opportunities/solutions and preparing a village resource management plan, (g) adoption and implementation of the plan, and (h) follow-up, evaluation, and dissemination of findings.

PRA is more structured in data collection than rapid appraisal. Data that are needed for a PRA include:

1. **Time-related data** that show important historical events, trends in weather patterns and markets, and seasonal calendars that indicate labor needs.

2. **People-oriented data** gathered through household interviews to show family problems and opportunities related to agricultural enterprises.
3. Technical data from local agencies that show soil types, infrastructure, crop production, weather patterns, available agricultural resources, etc.

4. Institutional data which show the organizations that deal with the local village, their impact on the village, and their relationships with each other.

5. Spatial data from local maps, transects, farm sketches, and direct observation that include elevation, slope, drainage, and other physical features. A transect can capture the diversity of topography as well as the diversity of land use. Team members draw the transect by walking and recording a straight-line description through an area. It normally cuts across the diverse agro-ecological zones in the area to show the range of topography, soils, crops, livestock, and other characteristics (World Resources Institute, 1990, pp. 11-55).

Considerations in Planning Rural Appraisals

Certain questions must be addressed and study parameters defined at the outset to govern the design of the study process. This lays the groundwork to guide specific design decisions. Relevant questions include:

1. What are the study objectives? What information should be collected; how will it be used? From whom will the information be collected? Who will benefit from the new information? What are the goals relating to the team itself? Have team members interacted to develop teamwork?

2. How much time is available to plan and conduct the rural appraisal? Some suggest that from four days to three weeks is appropriate for a rapid appraisal, and longer for a PRA.

3. What resources (e.g., people, experience, translators, computers, typists, transportation, etc.) will be available to conduct the appraisal?

Figure 1. Example of a Transect From a Participatory Rural Appraisal in Puerto Rico
4. How will respondents be selected to provide the desired information? Should respondents include farmers (e.g., poor, wealthy, male, female, ethnic representation), neighbors, input suppliers, marketing people, government agency personnel, community leaders, local educators?

5. What will be the mix of individual and group interviews, direct observation, team discussion, and recording? Ample time should be planned for team members to discuss daily findings.

6. How will interviews be structured? What questions should be asked? What form will the reports take? What process will be used to develop the final report?

7. Based on the answers to the above questions, should a rapid appraisal or PRA method be used?

If time is short, resources are limited, and the rural appraisal needed is only preliminary, then a rapid appraisal is likely to be the best approach. Data gathering methodology should be tailored to a given situation. The strategy may utilize any of the techniques described in the descriptions of rapid appraisal and PRA above, or the given situation may require an adaptation of these techniques.

If local participation in the process is extremely important and a comprehensive appraisal is needed, then PRA should be considered. If the time and resources are available to complete the eight steps of PRA then using PRA will likely produce more and stronger results.

**Rural Appraisal Design Kit**

Ideas and suggestions to plan a specific rural appraisal strategy are included in this section, which is organized according to the Participatory Rural Appraisal methodology. Examples from the authors’ experiences with rural appraisal are also included.

If PRA is selected, every step below needs to be carefully considered in the strategy. If the rapid appraisal method is selected, those elements which fit the local needs and the appraisal team's objectives, time and resources may be used, and other elements may be ignored.

1. **Site selection, local officials' clearance, and informing officials and the community.**
   a. A field worker may identify a community in need; a community may request assistance; a regional/national leader or external donor/consultant may identify an opportunity.
   b. Possible rural appraisal approaches are described to community leaders.
   c. If the decision is to conduct an appraisal, the plans should be communicated to all involved.

In the authors' experience, three different decision-makers selected the site. In Pennsylvania, the class instructors selected the site according to the learning needs of the students and the ability of the farmers to respond to questions. In Puerto Rico, the Soil Conservation Service professional determined the site according to accessibility and readiness of the farmers to use the information and recommendations. In Costa Rica and Zimbabwe, the decision was made by donor representatives in collaboration with the agency being studied.

2. **Team composition and orientation.**
   a. Team membership should be based on community needs and objectives of the rural appraisal. The team leader needs prior experience in rural appraisal and good organizational and communications skills.
   b. People from a variety of technical disciplines should be represented on the team. They may be agronomists, horticulturists, plant pathologists, conservationists, engineers, livestock specialists, farm management specialists, economists, sociologists, educators, leadership specialists, family resource specialists, organizational development specialists, and perhaps others depending...
on the local situation and objectives of the rural appraisal.

c. Technical specialists who work in the local area, and/or community leaders should be utilized to assure that a good understanding of the local situation is infused into the process.

d. Interview teams should be kept small (2-3 people), with a mixture of technical specialties, gender, and local orientation. A blend of insiders and outsiders is recommended.

e. Team members should be given a thorough orientation on the appraisal process and their respective roles in its implementation. Team member training might include an interview demonstration, an opportunity for each member to "act out" an interview, and practice in the field. Discussions should include how to obtain unbiased information and how to set up the interview so farmers or others speak as freely and honestly as possible. This may include dressing very informally, maybe not even taking notes or carrying a notebook, being as down-to-earth as possible, being patient and listening well, not overdirecting the interview, sometimes following the direction that the discussion leads.

f. The team should discuss the kinds of information that should be recorded, and how much structure the interview should take. It should decide if objectives are better met by focusing on averages or by seeking variability. It is usually recommended not to overly structure interviews, but merely guide discussions. Information might be recorded only after return to the team’s vehicle.

g. The entire team should meet at the end of each day to discuss and assemble findings, and to review the strengths and weaknesses of the rural appraisal strategy they have developed. Adjustments in the data collection process may be necessary to gain increased information and insight into an unforeseen problem or opportunity.

3. Preliminary data search.

a. Information on the study area such as population, topography, infrastructure, rainfall and average temperatures, soils and land use, crops, yields, livestock patterns, etc., should be collected from agencies before collecting local data.

b. Data from maps, aerial photographs, recent censuses, reports from government agencies and farm-related organizations, project reports and papers can be found in international, national, regional, and local government and agency offices, educational institutions, libraries, service organizations, cooperatives, and input suppliers.

In Pennsylvania, there was no preliminary data search since the PRA was limited to the opinions of farmers and the agencies that served them. In Puerto Rico, extensive library and computer searches, supplemented with reports from agencies in Puerto Rico were compiled into a monograph that the PRA team carried to Puerto Rico. In Costa Rica and Zimbabwe, preliminary data were provided by the donor organizations from previous projects and studies, from related agencies and educational institutions, and from the agency being studied.

4. Preliminary site visit.

a. The team may meet with a variety of people from the target community to explain the methodology and stress that the appraisal should lead to a community development plan. PRA refers to this as a village resource management plan.

b. It is important to maintain a balance between community self-sufficiency and external assistance.

c. Community representatives may want to discuss the proposed rural appraisal process among themselves.

d. If the proposed appraisal process is accepted, a community planning meeting should be organized to discuss problems, possible solutions, and how the rural appraisal might address some of their concerns.
5. **Data collection.** The techniques indicated below, and fully described with examples in the PRA handbook of the World Resources Institute (1990, pp 11-55) offer possible choices to a team in collecting data.
   
a. Direct observation can be used with an initial drive-through orientation to the area. This technique can also be used to cross-check data gathered by other techniques. Direct observation can validate data collected in other ways, and provide topics for further discussion. Photographs can be very useful to record situations for more accurate recall later or to show to others. Carefully written field notes are a must.
   
b. Continue to look for maps, aerial photographs, recent censuses, reports from government agencies and farm-related organizations, project reports, and papers. Visit local field technicians, government agencies, libraries, donors, and universities.
   
c. Farm sketches can show how farm families manage the land. This is done by mapping the fields, along with notes on land use, and qualitative and quantitative data. Farms may be chosen along the transect line to represent the different types of land and land uses.
   
d. Time lines can provide insights into community changes that are occurring over time. This can include information on key events, trends, community groups and organizations, and problems in the community.
   
e. Trend lines can show changes in resources, population, education, production, costs, labor, rainfall, crop acreage, wooded areas, irrigation usage, and erosion, over time.
   
f. A seasonal calendar presents a wide variety of information, usually in chart form, to show when activities and practices occur throughout the year. Typical information in a calendar would be items like the rainy season, temperature, cropping and livestock patterns, and working patterns and labor supply/demand.
   
g. Household interviews enable gathering of socio-economic/cultural information from a wide variety of types of farm families, aiming at farm and home resource management. These should include some local people who are not otherwise included in group interviews. Data should include family history, number, gender, family health and survival rate, level of education, farm and household water sources, fuelwood supply and its future, transportation, local organizations, farm workers, farm and off-farm sources of income, house and buildings, farm implements used, land resources, cropping and livestock production, conservation measures, farm inputs, products consumed and products sold, sources of farming advice and information, ag-related problems and possible solutions, awareness of community institutions, and organizations that impact the family.
   
h. Organizational analysis helps provide an understanding of the role of locally-involved organizations such as government agencies, credit institutions, various groups (men, women, youth, civic), cooperatives and associations, schools, and church groups, etc. The purpose is to learn about each organization's activities and role in community development, how the organization is seen by various community members, and interrelationships between organizations and local residents.

6. **Data synthesis and analysis.** The large amount of collected data must be organized and condensed into manageable units for assessment and ranking. Many separate items may be combined into one. Problem descriptions that are too general should be avoided.
   
a. Divide this task among team members so that each member is involved in preparing some portion of the report. Sections of the report are divided by topics such as land and soils, crops, livestock, forestry, plant/animal production problems, water, non-farm income, health, education, etc. Most rapid appraisals focus on a limited
topic, such as improving farm income. Therefore, the report will reflect this, even though a wide range of community influences should be understood. Many investigators caution against underestimating the time it takes to do this step adequately.

b. Recommendation domains is a label given to farming areas that have very similar characteristics and circumstances. The idea is that new innovations and technology transfer methodologies should be effective throughout a homogeneous area. Care, however, must be taken to see the variation of farming systems within a given geographic area. Rural appraisal team members should be sensitive to these variations and modify the gathering of data to provide information on those differences.

7. Problem identification and possible solution.
   a. Utilize team interaction to discuss, modify, and approve the reports, prioritize problems, and draw conclusions regarding problems and solutions. Local technicians and leaders should be included in this step so that local experience is represented.
   b. The PRA team, along with the local leaders, develops a list of problems and solutions.

8. Ranking opportunities/solutions to problems and community development plan.
   a. Involvement of community leaders, local committee and institution representatives, farmers, farmer groups, and other stakeholders in the process of ranking problems and possible solutions is often considered the most important step in the PRA process. Cleaver (1993, p. 43) relates to the need for local participation: “The growing democratization process in Africa... will give rural people more influence in government and a greater participatory role in local efforts....” The participation of farmers in the planning process will ensure their cooperation later during the implementation phase.
   b. The literature on PRA is weak in describing specific steps to accomplish this crucial step. The authors have found that the nominal group process (NGP) works extremely well to insure participation of all present to rank opportunities/possible solutions. NGP was used in Pennsylvania, Zimbabwe, Puerto Rico, and Costa Rica with excellent results.

Steps in the nominal group process include an Introduction that describes the process and states the issue in very specific terms. For example: “By this time next year the Camuy Association of Limited Resource Farmers should have accomplished the following...”

Step 1. Participants silently write answers that complete the issue statement.
Step 2. Participants, in small groups, list their answers on easel pads without discussion.
Step 3. Small groups debate the responses on the pads.
Step 4. Small groups vote (secret ballot) on the top three ideas (from the easel).
Step 5. Each small group leader tallies the votes and reports to the entire assembly. The assembly eliminates duplication then debates the ideas of the small groups using the pads.
Step 6. Each participant votes on the top 3-5 ideas from all of the easel pads.
Step 7. Results of the voting are announced (a priority list of ideas from the easel pads) and the assembly decides how the priorities will be addressed. (Etling & Maloney, 1995, pp. 30-32).

9. Adoption and implementation of the plan. A concrete local action/development plan is the desired outcome of a rural appraisal process. The plan includes priorities identified by the participants, proposed actions, individual and group implementation responsibilities, work schedules, and identification of areas where external assistance is desirable. A sound plan can be useful to influence decision makers.
Example: A Simple Planning Worksheet (Etling, 1995, module E-9)

Objective: ____________________________

<table>
<thead>
<tr>
<th>WHO (responsibilities)</th>
<th>DOES WHAT (activities or agenda)</th>
<th>BY WHEN (deadline)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Resources needed: ____________________________________________

How will this objective be evaluated? When? By Whom? ____________________________

Factors to be considered in this step include:

a. If local people are involved, they are more likely to assist with implementation.

b. Local people and technical advisors should discuss implementation procedures.

c. Individuals or groups that might assist or provide resources should be listed and contacted.

d. A timetable should be established with obtainable goals.

e. Often, training will be needed to produce the desired outcome or action.

f. The responsibility of the community for implementing and monitoring progress toward the action/development plan should be emphasized.

d. Part of the plan might include application to one or more development assistance agencies.

d. Support from district or regional officials should be formally solicited.

11. Identification of areas for further, maybe more in-depth, investigation. While these rural appraisal techniques can be effective in identifying problems and possible solutions, they do not replace the necessity for long-term, in-depth studies of specific problems that are central to a community’s development. The rural appraisal process can help target areas for further study.

Summary

The design of a rural assessment procedure tailored to the local situation and the desired study objectives will require careful attention to the choices of relevant data gathering directions and interview questions. Items relevant to each appraisal can be chosen from the Rural Appraisal Design Kit. The data collection process may need to be adjusted during the rural appraisal to gain increased insight into an unforeseen problem or opportunity. If questions or gaps arise during data gathering or analysis, a repeat visit to gather more data, or a public meeting may be needed to complete the data.

Some recommendations that are important for beginners:

10. Follow-up, evaluation, and dissemination of findings. The community must implement and monitor progress toward the action/development plan.

   a. Continuing leadership might be provided by local government administrators or by traditional systems such as chiefs, church leaders, local technical officers, cooperatives, or other local action groups. These could become contributors of certain resources as well.

   b. Most community development efforts are ongoing. Establishing a community development committee can assist with followup, evaluation, and publicizing activities and progress. Donors prefer to contribute to efforts that have a good organizational structure.
1. Plan and conduct an appraisal using common sense with the end result in mind.

2. Be flexible. Feel free to deviate from your plan when necessary.

3. Be opportunistic; listen to the views of unplanned interviewees when the opportunity arises, but record them as such.

4. Do not be oversold on one technique. Employing additional techniques can verify (or refute) the results of a single technique.

5. Use rural appraisal to complement other efforts. Often, an in-depth study, or studies, will be needed to provide information on certain critical issues.

The value of rural appraisal lies both within the process and the product. The process causes many people to learn much about a given situation and, perhaps, develop teamwork or a helping attitude toward the community. The value of the product is closely related to the skills of the investigators.

With careful planning, rapid appraisal can achieve its potential as a useful method for quickly gaining useful information about a rural community. It can be accomplished by individuals who do not have the time, funds, or expertise needed for a thorough quantitative study. It can be worth much more than the drive-by assessments done by so many outside experts or the recording of prejudices by officials who do not take the time to visit the local people and gather reliable information.

References


Factors Related to Agriculture Students Academic Performance in Swaziland

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Abstract

A relational study was designed to describe the relationship between students’ demographic and school-related characteristics, and their academic performance, and to identify the characteristics that explain and predict students’ academic performance. Results revealed negligible to substantial association between the students’ academic performance and selected characteristics, as well as among student characteristics. The variables found to explain and predict variance in the dependent variable, students’ academic performance, were previous academic performance, gender, age, work done at home, time spent reading in the library, students’ attitudes toward school, and involvement in peer group discussion.

Introduction

Research has revealed that a number of variables explain and predict variance in student academic performance. The variables include demographic characteristics, school-related factors, background factors, teacher-related factors, general educational objectives of the nation, and curricular-related factors (Dlamini, 1995a; Ngqwane, 1986); better discipline, high staff expectations for achievement, strong leadership by the principal, and clear set of goals emphasized (Cruickshank, 1979); the social environment such as type of family the student came from, classmates or school mates, acquisition of language, and type of teacher (Datta, 1992; Ezewu, 1992; Robinson, 1982).

Gender has been found to influence students’ academic performance (Braddock, 1981; Madhere & Walker, 1985; Simelane, 1996; Wheldon & Smith, 1986). School location (rural or urban) has been shown to be one of the significant factors contributing to student academic performance (Dlamini, 1995). The aforementioned studies were mostly conducted in the western world. The need was felt to explore the consistency of some of the variables in the developing world. This study of the academic performance of agriculture students in Swaziland, a developing country, was undertaken in response to this need.

Purpose of the Study

The purpose of the study was to determine the relationship between academic performance and selected characteristics of agriculture students in Swaziland. The specific objectives of the study were:

1. Determine significant differences in students’ academic performance by demographic and school-related characteristics.
2. Determine relationships between students’ academic performance and demographic and school-related characteristics.
3. Identify the independent variables that best explain and predict the dependent variable, academic performance.
Methodology

The design of the study was descriptive correlational. The target population (N=750) of the study included all Form IV students in the country who sat for the Junior National Certificate Examination during the 1995 school year, and enrolled in agriculture classes in high schools offering agriculture as a subject in the school year 1996. The frame for the study was obtained from the Ministry of Education. A random cluster sample of 253 students was drawn, using the Krejcie and Morgan (1970) table for determining sample size.

The dependent variable in this study was the overall performance grade obtained in the Junior National Certificate Examination during the 1995 school year. The major independent variable was previous academic performance (in grade seven). The alternative independent variables were demographic and school-related characteristics of students.

The researchers developed two questionnaires to collect information. One questionnaire was intended to collect students’ academic performance data in the National Junior Certificate Examination from the Examination Council of Lesotho and Swaziland. The second questionnaire was designed to gather information from students with regard to the independent variables of interest in this study. The items on the demographic and school-related characteristics of students were constructed as partially closed-ended whereby the students were asked to fill or check their responses. Statements related to one of the school-related characteristics, namely the attitude of students toward their school, were measured by the Likert scale of 1 (strongly disagree); 2 (disagree); 3 (agree); and 4 (strongly agree). Fourteen statements were designed for responses to the attitude domain. Content validity of the questionnaire was established by a panel of experts. Reliability of the attitude variable was found to be .78, using Cronbach’s alpha. A self administered questionnaire method was used which minimized non-response error. The researchers made appointments with headmasters and agreed on an appropriate day for the administration of the questionnaires to students.

Frequencies, means, correlations, t-tests, analysis of variance and multiple regression analysis were used in this study. The statistical package for social sciences (SPSS, 1991) was used to analyze data. An a priori alpha level of .05 was used to determine statistical significance.

Findings

Summary of Differences in Academic Performance of Agriculture Students by Demographic Characteristics

Data presented in Table 1 indicate differences in academic performance of agriculture students by demographic characteristics. Significant differences in students’ academic performance were found only in relation to the characteristic gender. In this case, female students obtained significantly higher scores than males.

Summary of Differences in Academic Performance of Agriculture Students by School Related Characteristics

Data presented in Table 2 indicate differences in academic performance of agriculture students by school-related characteristics, and attitude of the students toward their school. The students in general had a positive attitude toward their school. Significant differences in students’ academic performance were found in relation to two characteristics, namely student involvement in group discussion, and assistance with homework.
### Table 1

**Summary of Differences in Academic Performance of Agriculture Students by Demographic Characteristics.**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>n</th>
<th>Mean academic performance&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Test statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>111</td>
<td>3.83</td>
<td>t= -2.24**</td>
</tr>
<tr>
<td>Female</td>
<td>142</td>
<td>4.04</td>
<td></td>
</tr>
<tr>
<td><strong>2. Age (years)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-20</td>
<td>244</td>
<td>3.95</td>
<td>t= .78</td>
</tr>
<tr>
<td>21-25</td>
<td>9</td>
<td>3.77</td>
<td></td>
</tr>
<tr>
<td><strong>3. Home location</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>125</td>
<td>4.03</td>
<td>t= 1.70</td>
</tr>
<tr>
<td>Urban</td>
<td>128</td>
<td>3.87</td>
<td></td>
</tr>
<tr>
<td><strong>4. Residence</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boarder</td>
<td>214</td>
<td>3.92</td>
<td>t= 1.41</td>
</tr>
<tr>
<td>Non-boarder</td>
<td>39</td>
<td>4.08</td>
<td></td>
</tr>
<tr>
<td><strong>5. Frequency in taking breakfast per week</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-3 times</td>
<td>14</td>
<td>3.87</td>
<td></td>
</tr>
<tr>
<td>4-6 times</td>
<td>51</td>
<td>3.95</td>
<td>F= .08</td>
</tr>
<tr>
<td>7 times</td>
<td>188</td>
<td>3.95</td>
<td></td>
</tr>
<tr>
<td><strong>6. Time spent sleeping per night (hrs.)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-6</td>
<td>52</td>
<td>4.01</td>
<td>t= .45</td>
</tr>
<tr>
<td>7-9</td>
<td>201</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>7. Time spent on leisure (hrs /day)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>43</td>
<td>3.95</td>
<td></td>
</tr>
<tr>
<td>1-3</td>
<td>150</td>
<td>3.95</td>
<td>F= .044</td>
</tr>
<tr>
<td>4-6</td>
<td>21</td>
<td>3.90</td>
<td></td>
</tr>
<tr>
<td><strong>8. English usage at home</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Used</td>
<td>109</td>
<td>3.89</td>
<td>t= .98</td>
</tr>
<tr>
<td>Not used</td>
<td>144</td>
<td>3.98</td>
<td></td>
</tr>
<tr>
<td><strong>9. Source of sponsorship</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents</td>
<td>219</td>
<td>3.94</td>
<td></td>
</tr>
<tr>
<td>Guardian</td>
<td>17</td>
<td>3.91</td>
<td>F= .20</td>
</tr>
<tr>
<td>Private</td>
<td>17</td>
<td>4.06</td>
<td></td>
</tr>
<tr>
<td><strong>10. Type of family</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father only</td>
<td>31</td>
<td>4.00</td>
<td></td>
</tr>
<tr>
<td>Mother only</td>
<td>57</td>
<td>3.85</td>
<td></td>
</tr>
<tr>
<td>Nuclear</td>
<td>125</td>
<td>3.94</td>
<td>F= .90</td>
</tr>
<tr>
<td>Extended</td>
<td>32</td>
<td>4.12</td>
<td></td>
</tr>
<tr>
<td>Adopted</td>
<td>8</td>
<td>3.71</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> 6 (highest score) to 1 (lowest score) following a modified Cambridge grading system

*<sup>p</sup>< .05

**<sup>p</sup>< .01
Table 2

Summary of Differences in Academic Performance of Agriculture Students by School Related Characteristics.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>n</th>
<th>Mean academic performance(a)</th>
<th>Test statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>Level at which joined school</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Form 1</td>
<td>151</td>
<td>4.19</td>
<td>t=1.86</td>
</tr>
<tr>
<td>Form 2</td>
<td>14</td>
<td>3.91</td>
<td></td>
</tr>
<tr>
<td>2. <strong>Number of times repeated a grade</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never repeated</td>
<td>188</td>
<td>3.99</td>
<td></td>
</tr>
<tr>
<td>Repeated once</td>
<td>56</td>
<td>3.84</td>
<td>F=2.29</td>
</tr>
<tr>
<td>Repeated twice</td>
<td>9</td>
<td>3.53</td>
<td></td>
</tr>
<tr>
<td>3. <strong>Distance travelled to school (km)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(&lt;10)</td>
<td>158</td>
<td>3.97</td>
<td>F=2.12</td>
</tr>
<tr>
<td>11-20</td>
<td>42</td>
<td>3.87</td>
<td></td>
</tr>
<tr>
<td>Above 20</td>
<td>53</td>
<td>4.25</td>
<td></td>
</tr>
<tr>
<td>4. <strong>Time spent reading in the library (hrs/day)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(&lt;1)</td>
<td>106</td>
<td>3.87</td>
<td>F=2.73</td>
</tr>
<tr>
<td>1-3</td>
<td>130</td>
<td>4.04</td>
<td></td>
</tr>
<tr>
<td>4-5</td>
<td>17</td>
<td>4.28</td>
<td></td>
</tr>
<tr>
<td>5. <strong>Involvement in group discussion</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Involved</td>
<td>218</td>
<td>3.90</td>
<td>t=2.08*</td>
</tr>
<tr>
<td>Not involved</td>
<td>35</td>
<td>4.21</td>
<td></td>
</tr>
<tr>
<td>6. <strong>Assistance with home work received at home</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not received</td>
<td>141</td>
<td>3.78</td>
<td>t=3.86**</td>
</tr>
<tr>
<td>Received</td>
<td>112</td>
<td>4.14</td>
<td></td>
</tr>
<tr>
<td>7. <strong>Time spent doing home work (hrs/day)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>2</td>
<td>4.16</td>
<td></td>
</tr>
<tr>
<td>1-3</td>
<td>223</td>
<td>3.96</td>
<td>F=.43</td>
</tr>
<tr>
<td>4-5</td>
<td>28</td>
<td>3.83</td>
<td></td>
</tr>
<tr>
<td>8. <strong>Involvement in extra-curricular activities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Involved</td>
<td>210</td>
<td>3.95</td>
<td>t=.41</td>
</tr>
<tr>
<td>Not involved</td>
<td>43</td>
<td>3.98</td>
<td></td>
</tr>
<tr>
<td>9. <strong>Time spent on extra-curricular activities (hrs/day)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>43</td>
<td>3.94</td>
<td>F=.03</td>
</tr>
<tr>
<td>1-2</td>
<td>175</td>
<td>3.96</td>
<td></td>
</tr>
<tr>
<td>3-4</td>
<td>35</td>
<td>3.95</td>
<td></td>
</tr>
<tr>
<td>10. <strong>Attitudes of students toward their school(b)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative</td>
<td>2</td>
<td>3.94</td>
<td>F=1.32</td>
</tr>
<tr>
<td>Average</td>
<td>56</td>
<td>3.80</td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>195</td>
<td>3.99</td>
<td></td>
</tr>
</tbody>
</table>

\(a\) 6 (highest score) to 1 (lowest score) following a modified Cambridge grading system

\(b\) Positive (means above 3.5); Average (means between 2.5 and 3.49); Negative (means below 2.5)

* \(p \leq .05\)

** \(p \leq .01\)
Intercorrelations Among Characteristics and the Dependent Variable of Academic Performance

Correlations were used to describe the relationship between students’ academic performance in the Junior Certificate Examination and the independent variables. Davis’s scale was used to describe the magnitude of relationships (Table 2). Most of the variables revealed a negligible association (<.09) while a few showed a low association (.10-.29).

Intercorrelations among most of the independent variables indicated low degree of multicollinearity (correlations below .80). This was useful in explaining the results of the subsequent multiple regression analysis, because high magnitude of multicollinearity requires grouping of variables to narrow down the number of related independent variables or even dropping the unimportant independent variables (Dlamini, 1995b).

Regression Analysis of Academic Performance and the Independent Variables

Estimation of the relationship between the independent variables and students’ academic performance was conducted using regression analysis. Stepwise regression was used to determine which independent variables explained the variance, and which variables best predicted students’ academic performance. \( R^2 \) values were calculated to explain the amount of cumulative variance the significant independent variables accounted for. The \( R^2 \) change values were used to explain the unique amount of variance accounted for by each significant independent variable. Results of the regression of students’ academic performance on the predictor variables are presented in Table 4.

Seven independent variables were found to explain and predict academic performance. The cumulative variance (\( R^2 \)) in academic performance explained by the independent variables was 27.8%. Students’ performance level at Grade 7 (previous performance) was found to explain the greatest variance (12.8%) in the dependent variable, while age of the students explained 5.6%, gender 2.2%, time spent reading in the library 2.1%, assistance at home doing homework 2.0%, students’ attitude toward school 1.7%, and involvement in group discussion 1.5%.

The characteristics of gender and assistance with homework were found to be significant in the comparison of characteristics with academic performance as well as in the regression analysis. These two variables could pose a threat to the internal validity of the major hypothesis (Warmbrod & Miller, 1974). However, their contribution to students’ academic performance is negligible, while the major independent variable (previous academic performance) explains a relatively high variance in the dependent variable.

Conclusions and Implications

Significant differences in academic performance by agriculture students were observed only in the demographic characteristic gender, and in two school-related characteristics: involvement in group discussion, and assistance with homework. Negligible to moderate associations were found between students’ academic performance and each of the independent variables. However, most independent variables had negligible to low associations among themselves. Independent variables found to explain variance and predict academic performance were: performance level at Grade 7 (previous performance), age of the student, gender, student being given assistance at home, time spent in the library, students’ attitudes toward their school, and involvement in peer group discussions.
Table 4

Predictors of Agriculture Students’ Academic Performance (Stepwise Regression).

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>R</th>
<th>R²</th>
<th>R² Change</th>
<th>b</th>
<th>B</th>
<th>t-value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Performance at grade 7</td>
<td>.358</td>
<td>.128</td>
<td>.128</td>
<td>.373</td>
<td>.336</td>
<td>5.508</td>
<td>.0001</td>
</tr>
<tr>
<td>2. Age of the student</td>
<td>.430</td>
<td>.184</td>
<td>.056</td>
<td>-.114</td>
<td>-.223</td>
<td>-3.799</td>
<td>.0002</td>
</tr>
<tr>
<td>3. Gender</td>
<td>.456</td>
<td>.208</td>
<td>.024</td>
<td>.232</td>
<td>.154</td>
<td>2.716</td>
<td>.0071</td>
</tr>
<tr>
<td>4. Time spent reading in the library</td>
<td>.479</td>
<td>.229</td>
<td>.021</td>
<td>.086</td>
<td>.146</td>
<td>2.620</td>
<td>.0093</td>
</tr>
<tr>
<td>5. Students helped with homework</td>
<td>.499</td>
<td>.249</td>
<td>.020</td>
<td>-.215</td>
<td>-.147</td>
<td>-2.521</td>
<td>.0123</td>
</tr>
<tr>
<td>6. Attitude of students</td>
<td>.516</td>
<td>.266</td>
<td>.017</td>
<td>.256</td>
<td>.139</td>
<td>2.454</td>
<td>.0148</td>
</tr>
<tr>
<td>7. Involvement in group discussion</td>
<td>.528</td>
<td>.278</td>
<td>.012</td>
<td>-.249</td>
<td>-.115</td>
<td>-2.063</td>
<td>.0402</td>
</tr>
</tbody>
</table>

Constant 4.49

Adjusted R² =.247
Standard error =.64

The major independent variable of previous performance as being a significant predictor of future performance was supported in this study. This finding is consistent with the literature in the western world. Students who performed well at primary national examination in this study are likely to also perform well at the Junior Certificate Examinations level. Therefore, head teachers can make use of this information in selecting their prospective secondary pupils. Parents should be conscious of helping their children with school work. Schools should improve or provide library facilities as it has been confirmed in this study that there is a positive relationship between time spent reading in the library and students’ academic performance.

Dlamini (1995b) also obtained similar findings with university students enrolled in the college of agriculture in Swaziland, where previous academic performance and time spent in the library were among the best predictors of academic performance. Involvement in extra curricular activities was eliminated as best predictor of academic performance in both the Dlamini study (1955b) and in this study.

Not being involved in discussion groups as a predictor of future academic performance needs further study as previous work (Ngqwane, 1986) found that group discussion enhanced students’ academic performance in agricultural classes.

References


TOWARD PRIVATIZATION OF AGRICULTURAL EXTENSION: A CASE STUDY OF THE
VERACRUZ SELF-MANAGEMENT SYSTEM OF PRODUCTION, MEXICO

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Abstract

Strategies for agricultural extension have been changing in the last decade in Mexico. The Veracruz Self-Management System of Production (SIVAP) was created in 1994 under an extension privatization strategy. An evaluative study of a portion of this program showed that the strategy was not applied completely or effectively. Although farmers wanted to participate in the program, most of the traditional drawbacks, including performance of extension workers, scarce resources and lack of support to carry out extension activities, and weaknesses in leader-follower relationships, inhibited farmer participation and accomplishment of the program's goals.

Introduction

Structural and strategic changes in agricultural extension and rural development have been occurring since the late 1980s in Mexico. These changes stem from the country's general modernization policies, including a free market orientation and liberalization of the economy. In this environment, the shift from a government-managed public extension service to a system that is beginning to privatize has been a significant change. Of specific interest to the author was the experience of the new "Sistema Veracruzano de Autogestión Productiva," (SIVAP), a new system of self-managed extension created in 1994 to modernize agriculture and improve the productivity and welfare of rural people in the region.

The Mexican Government planned structural changes in the agricultural sector as a part of national policy. A new role was envisaged for state government in its relationships with farmers and the market by which the functions of producing and delivering goods and services would be transferred to private enterprises and organizations (Secretaria de Agricultura y Recursos Hidraulicos, 1990). As a result, state government budgets and credit for social and extension programs were reduced. At present, this process of change is in transition from the state government serving in its old role of protector and patron to the new role of promoter, coordinator, facilitator, and regulator. The mandate is for government to stimulate farmers' initiative and participation so that they become enterprise producers, who would use the advantages of free market mechanisms.

SIVAP is not a completely privatized system in the true sense of privatization where goods and services are paid for exclusively by customers. It is as yet a government-funded and organized program of agricultural development, which has a component of privatization of technical assistance, training, and other extension services. Salaries of extension personnel providing these services are paid by the state or federal government, while the cost of extension services has to be assumed by farmers (Secretaria de Desarrollo Agropecuario, Forestal y Pesquero del Estado de Veracruz, 1994).

Two other characteristics distinguish SIVAP from the government-managed public extension
service. One is the notion of the extension worker as a private manager (*gestor privado* in Spanish). Private managers are located in private offices. Their main task is to encourage farmers to adopt new ideas and practices for improving agriculture. They are frontline workers similar to village extension workers in a conventional agricultural extension system. Also in the SIVAP setup are extension agents who coordinate the work of and assist private managers in their tasks. These agents parallel agricultural extension officers.

The second distinguishing characteristic of SIVAP is that more successful farmers are used to transfer their technological knowledge, experience, and skill to less successful farmers in the community. This approach assumes that appropriate technology, and efficient and successful farmers exist in a given region and can be shared. Three types of farmers are identified: (a) enterprise farmers who use high technology, (b) medium farmers who use their own improved technology, and (c) subsistence farmers who use traditional technology. In implementing the SIVAP strategy, the state government of Veracruz designed a mechanism in which state and federal agencies, and private and business organizations participated in the program by facilitating services and inputs. The expectation was that the program would improve productivity and farmers' income.

SIVAP's mission of improving farm productivity, and its operating strategy of using successful farmers to spread technology to other farmers are similar to the Training and Visit Extension System's (T&V) objective of increasing the efficiency and effectiveness of technology transfer among small farmers, and its strategy of using contact farmers to influence non-contact farmers to adopt improved technology, developed by Benor and promoted by the World Bank in Asia, Africa and Latin America (Benor, Harrison & Baxter, 1984).

The SIVAP program started in April 1994. According to Secretaria de Desarrollo Agropecuario, Forestal y Pesquero del Estado de Veracruz (1995), 425 leaders and 3,168 followers from 348 rural communities were in the program. To support extension activities, 60 extension workers from 13 private offices were involved. In addition, 96 agribusiness enterprises were affiliated with the program. The area of the state is 72,815.7 square kilometers, with a population of approximately six million, 44% of whom are rural. Although the program had been in operation for three years, it had not been evaluated. Obviously, program directors and officers, politicians, and state and federal organizations wanted to know how the program was progressing, and what impact it had had on the region. Questions to be answered were: How has the strategy worked in terms of extension agents' performance and farmers' participation? What are the results in using recommended technologies, improving farmers' skills, and increasing agricultural production and productivity?

The Program of Rural Development Studies of the Colegio de Postgraduados (a graduate college) in Montecillo, Mexico, was asked to evaluate a portion of the program. A report of the evaluation is given in this article.

**Purpose and Objectives**

The overall purpose of the study was to determine the impact of SIVAP's self-managed extension program on farmers and extension agents. The specific objectives of the study were:

1. To determine the characteristics of extension agents and their perceptions about the program.
2. To determine the characteristics of farmers.
3. To determine the participation of leaders and followers in SIVAP activities.
4. To determine tasks performed by leaders in the program, and their perceptions of the program.
5. To determine participation of farmers in the program, and their perceptions of the program.
Methodology

This was a descriptive study using a survey design to gather data. In addition to personal interviews with designated study respondents, direct observation, and review of official documents was done.

The population of farmers in the two development districts (004 and 009) of the state selected for the study was 440: 26 leaders and 218 followers in SIVAP, and 196 non-participants. These districts are pilot areas in which SIVAP activities are concentrated, and which the program director wanted to include in the evaluation.

Samples from followers and non-participant farmers were drawn using stratified random sampling. Sample size for the two groups was determined using Cochran’s formula for determining sample size with maximum variance, and 95% of level of confidence. A total of 37 followers and 30 non-participant farmers were included in the sample. All 26 leaders were planned to be interviewed, but only 20 could be included. Questionnaires were designed for each of the three respondent groups, but most of the questions were the same. Questionnaires were constructed by the evaluation team based on experience with the program, and pertinent literature. Two graduate students, a research assistant, and a professor in the Colegio de Postgraduados were on the evaluation team. The questionnaires for followers and non-participants were pre-tested for face validity with a small number of each group. Data were collected by the two graduate students on the evaluation team after receiving training on how to conduct personal interviews.

To get additional information, a review of official documents and records, informal face-to-face interviews with seven extension agents, two program supervisors and the SIVAP coordinator, and direct observation of farmer participation in SIVAP activities in the field, were done. Interview data were entered into a computer using dBase, and descriptive statistics determined using the Statistical Analysis System.

Results

Characteristics and Perceptions of Extension Agents

In SIVAP, the extension worker is called a private manager who performs the function of supporting and assisting farmers, especially leaders, in acquiring technological knowledge and farm management skills. In the two development districts included in the study, four private extension workers, one municipal extension manager, and two supervisors were charged to organize and carry out extension activities. Two agents were women; average age was 32 years; most agents were agronomists; none of them had more than 5 years of experience as an extension worker. Most agents did not attend any training courses in the three-year program period of SIVAP.

Private managers were from the region of the study. Despite low salaries, they were motivated to work in the program. A major portion of salaries came from the state government. According to SIVAP, farmers will be able to pay for technical services in another three years.

The principal problem perceived by extension workers was inadequate facilities to carry out extension activities. For example, three agents did not have a vehicle for transport or the resources to carry out training courses and field demonstrations.

Infrequent and inadequate communication was also cited as a problem because there was no single line of command, and linkages with research, input, and service institutions were practically nonexistent. Much could be done to improve farmers’ capacity for production and self-management, but lack of facilities was a major hindrance.

From the above, it can be inferred that extension workers have serious limitations in performing
their tasks effectively. This contradicts the principle that to teach farmers suitable technical practices and convince them to try the technology, extension workers must receive intensive support and guidance. Also, their work must be recognized personally, and in the form of opportunities for professional growth and technical upgrading.

Characteristics of Farmers

The characteristics of farmers designated as leaders, followers, and non-participants in SIVAP who were included in the study are shown in Table 1.

All farmers were male. The average age of farmers in the three groups was about the same, and close to the average age of 48 years from other regions of Mexico (Quispe & Jimenez, 1996). Average number of years of schooling for the three groups was also about the same and slightly higher than the 3.5 years for other rural regions of Mexico (Quispe & Jimenez, 1996). Percent illiteracy was twice as high for non-participating farmers as the other two groups, and also higher than the 7% rate for rural Mexico (Quispe & Jimenez, 1996). Average family size was considerably higher for leaders as compared with the other two groups. Leaders in both development districts of the study owned nearly twice as much land in their farms as followers. Non-participants had the smallest holdings. Larger land holdings in District 004 could be because of the lower population density, 111.8 inhabitants compared to 124.7 inhabitants per square kilometer in District 009 (Instituto Nacional de Estadistica, Geografia e Informatica, 1994).

Leaders’ and Followers’ Participation in SIVAP Activities

According to the SIVAP report, Massification of SIVAP (1995), many training and field demonstration activities were organized by extension agents. Between 2 and 4 such activities were conducted each year, depending on the situation.

Table 1

Characteristics of Farmers Designated as SIVAP Leaders, Followers, and Non-participants in Selected Development Districts of Veracruz.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>SIVAP Leaders (n=20)</th>
<th>SIVAP Followers (n=37)</th>
<th>SIVAP Non-participants (n=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Female</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Average age (years)</td>
<td>46.0</td>
<td>41.0</td>
<td>41.0</td>
</tr>
<tr>
<td>Average schooling (years)</td>
<td>4.0</td>
<td>5.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Percent illiterate (%)</td>
<td>5.0</td>
<td>5.4</td>
<td>10.0</td>
</tr>
<tr>
<td>Average family size (n)</td>
<td>8.0</td>
<td>6.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Average farm size (hectares)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>District 004</td>
<td>33.0</td>
<td>19.0</td>
<td>10.0</td>
</tr>
<tr>
<td>District 009</td>
<td>9.0</td>
<td>5.0</td>
<td>3.2</td>
</tr>
</tbody>
</table>
Table 2

Participation of Farmers in SIVAP Training Activities Organized by Extension Agents in 1996.

<table>
<thead>
<tr>
<th>Activities</th>
<th>Leaders (n = 20)</th>
<th></th>
<th>Followers (n = 37)</th>
<th></th>
<th>Total (n=57)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Training</td>
<td>14</td>
<td>70.0</td>
<td>23</td>
<td>62.2</td>
<td>37</td>
<td>64.9</td>
</tr>
<tr>
<td>Field demonstrations</td>
<td>8</td>
<td>40.0</td>
<td>23</td>
<td>62.2</td>
<td>31</td>
<td>54.4</td>
</tr>
<tr>
<td>Technical assistance</td>
<td>16</td>
<td>80.0</td>
<td>17</td>
<td>45.9</td>
<td>33</td>
<td>57.9</td>
</tr>
<tr>
<td>Orientation on how to get credit</td>
<td>4</td>
<td>20.0</td>
<td>5</td>
<td>13.5</td>
<td>9</td>
<td>15.8</td>
</tr>
<tr>
<td>Explanation on how to get input</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11</td>
<td>19.3</td>
</tr>
<tr>
<td>facilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explanation on how to fill out and</td>
<td>15</td>
<td>75.0</td>
<td>0</td>
<td>0.0</td>
<td>15</td>
<td>26.3</td>
</tr>
<tr>
<td>use the productivity cards</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The data in Table 2 show that nearly two-thirds of the farmers participated in training activities concerning corn production practices such as fertilization, new varieties, and soil management, and over one-half took part in field demonstrations or received technical assistance from extension workers. Twice as many leaders as followers got technical help from extension agents, but more followers took part in field demonstrations. The participation of farmers in training on how to get credit and inputs, and fill out and use productivity cards was poor or nonexistent. Very few farmers received credit information because of high interest rates and/or annoying procedures to get credit. A majority of the leaders but none of the followers received explanations from extension agents on how to get input facilities (55.0%) and use productivity cards (75%). These tasks are expected to be performed as a service to followers by the leaders. It would appear, therefore, that leaders did not fulfill this obligation.

Leader Task Performance and Perceptions of SIVAP

According to SIVAP strategy, the primary role of leaders is to transfer technology and assist followers in adoption. Several open-ended questions were asked to see how leaders perceived and performed their role.

To the question "Why are you participating in the program?", a majority of the leaders (53.8%) said they participated because they needed technical assistance (29.3%), government support (19.5%), or credit (4.9%). Less than half the leaders said the reason for their participating was wanting to help other farmers (46.3%).

When asked what tasks were performed, 45.0% of the leaders said they helped followers, 45.0% transmitted their knowledge and experience, and extension recommendations to followers, while 10.0% did not know what tasks they were expected to perform.

In SIVAP, each leader selects and assists 8-10 followers. It was found that 90.0% of the leaders selected relatives, 5.0% chose friends, and 5.0% relied on the extension agent to select the followers.

On the kinds of activities organized to encourage followers to adopt recommended technology, 90.0% of the leaders used formal and informal meetings and demonstrations, 75.0% visited followers' farm plots, 55.0% collaborated with the agent in organizing meetings and related activities, and 7.4% taught farmers how to use cards.

Leaders indicated that only 58.3% of their planned activities could be carried out due to lack of support from extension agents, and
scarcity of inputs. They corroborated the lack of support by SIVAP reported by extension agents.

Followers' Participation in and Perceptions of SIVAP

The SIVAP strategy assumed that followers would learn from, and apply recommendations given by leaders. Over three-fourths of leaders said they decided to participate in SIVAP to receive technical assistance (54.0%) or learn new technologies (21.6%); the remaining one-fourth needed government support (16.2%), or credit (5.4%). Over one-half of the followers (56.8%) received explanation about the nature, objectives and strategies of SIVAP from leaders or extension agents. The rest got some information from friends and neighbors (35.1%), or no explanation at all (8.1%). This suggests that a number of farmers did not know enough about SIVAP. They also expected, from past experience, to receive support and help from the state or federal government, and not be actively pursuing opportunities for their own progress.

On a question regarding services and learning received from leaders, 48.6% received services, assistance or help. Of the farmers who received help from leaders, 27.0% got this help through group meetings, practices and field demonstrations; 29.7% obtained technical assistance; 29.7% learned how to fill out and use productivity cards; 13.5% learned how to get credits and other inputs; and 13.5% learned how to better commercialize their products. This group was also asked what agricultural practices they had learned from leaders. Most of them (66.6%) learned how to fertilize and seed for corn production. 22.2% learned insect and rodent control, 11.1% how to prepare and use manure as fertilizer, and 11.1% how to get credit and other inputs. A few farmers indicated learning more than one practice. This may suggest that farmers can learn from one another if there is appropriate communication among them, and favorable internal and external conditions.

Followers were also asked their opinion about the performance and attitude of their leaders. Opinions were divided on this question: 50.0% indicated that their leaders did a good job, 30.0% were not totally convinced, and 20.0% did not have a good opinion.

Both followers and leaders emphasized that the main problem was not the need for technical assistance or new technologies, but the expense of farm inputs such as fertilizers, pesticides, tools, and equipment, and the low price they received for agricultural produce, especially corn. This was due to a general crisis in the economy, and pricing policies. In fact, the cost of corn production (US $336/hectare) was greater than the value of the yield (US $265/hectare).

Non-participants' Opinions about SIVAP

Non-participant farmers were also asked about SIVAP. Nearly two-thirds of them had heard about SIVAP from friends, relatives or neighbors, but no one knew details of the program. This group was asked why they did not participate in the program. Nearly 80.0% were not informed or notified to participate, 10.0% had other responsibilities, and 10.0% were not interested. Asked if they would like to participate in SIVAP, 80.0% responded positively. This may suggest that SIVAP is still unknown but has potential in the region.

Opinion of farmers on their socioeconomic situation. Leaders, followers, and non-participants were asked to indicate on a 7-point Likert-type scale their socio-economic situation three years before the program started, at present, and in the next three years, using 1 to signify the poorest situation, and 7 the richest. The data in Table 3 show that all three groups felt their current situation was better than before the start, and that the future situation after three years would further improve. Leaders and followers were about equally optimistic, more so than non-participants. However, most farmers did not attribute this to the program, but to their own efforts and sources.
Table 3

Farmers’ Opinions About Their Socioeconomic Situation.

<table>
<thead>
<tr>
<th>Farmer Group</th>
<th>Three years before start of program mean rating</th>
<th>At present mean rating</th>
<th>Next three years mean rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leaders</td>
<td>2.40</td>
<td>3.80</td>
<td>5.35</td>
</tr>
<tr>
<td>Followers</td>
<td>2.05</td>
<td>3.49</td>
<td>5.51</td>
</tr>
<tr>
<td>Non-participants</td>
<td>1.80</td>
<td>2.87</td>
<td>3.97</td>
</tr>
</tbody>
</table>

a Rating: 1="poorest"; 7="richest"

Conclusions

The study showed that SIVAP has had limited success as a self-managed extension system as it moves toward the goal of privatizing extension services to farmers. Although farmer leaders and followers feel that their socio-economic situation has improved since the start of the program, this may not be as a result of the program. Other reasons not studied could be responsible.

Many weaknesses and difficulties are evident in the program's implementation. Leaders participated in extension-organized activities more than followers; in some cases, there was no follower participation. Apparently, leaders did not fully understand that their role was primarily to receive training from agents and transfer this knowledge as well as their experience to help followers apply new technology. One-half of the leaders admitted that they participated in SIVAP to get technical assistance and government help for themselves. On a positive note, those leaders who assisted followers used various meetings, demonstrations, and plot visits on their own initiative, or in collaboration with extension agents. For their part, farmers were about equally divided on their opinion about the quality of service and learning received from leaders, and the performance and attitude of leaders.

Lack of resources and inadequate infrastructure and communication continue to hamper extension agents from performing their job. Farmers and extension agents had similar opinions in this regard. Farmers also were disadvantaged by the high cost of farm inputs, low market prices for agricultural produce, and unfavorable price policies.

Implications

In a time of change and scarce resources for improving agriculture, and the life condition of farmers, it is important not just to have a good plan but to effectively implement it. SIVAP has the potential to be a good program, but for this potential to be realized, weaknesses in the job performance and organization of extension agents need to be corrected, and facilities and support to effectively carry out extension activities should be provided. Undesirable farming conditions have to be corrected, and farmers' efforts need support of active, high-performing extension agents.
References


AN INTERDISCIPLINARY MODEL FOR BEHAVIOR ANALYSIS AND INTERVENTION IN AGRICULTURAL EXTENSION AND RURAL DEVELOPMENT

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Abstract

Against the background of interdisciplinary behavior theories, and based on extensive empirical research, an interdisciplinary model for behavior analysis and intervention is proposed. The model is based on needs, perceptions and knowledge, which, as intervening variables, represent the direct causes or potential change forces. It lends itself for analyzing behavior in situation analyses and for planning change strategies focused on individuals, groups or communities.

The article gives a brief overview of the rationale behind the model and describes the critical behavior determinants, which, if analyzed, are assumed to provide an insight into adoption behavior and, consequently, provide a basis for behavior modification.

The Problem and Theoretical Background

Agricultural and rural development implies behavioral change that usually is the result of external intervention. To be systematic and purpose-oriented, this intervention should be based on situation surveys and analyses providing, amongst others, an inventory of relevant behavior determinants. The identification and research of these determinants should take place within the framework of a sound theory of behavioral change. Since the classical investigation by Ryan & Gross (1943) into the adoption of hybrid corn, different approaches and concepts have been proposed and used. Albrecht (1969) classified the approaches as teaching method, atomistic communication, socio-cultural communication, and situation-functional approaches. However, no interdisciplinary theory that is useful for practitioners and that provides for the complexity, diversity and situation-specificity of human behavior, has been developed.

In seeking an appropriate theoretical explanation for behavioral change in extension, Hruschka (1969) singled out Lewin’s (1951) field theory as potentially the most useful. The basic notion of Lewin’s field theory is that the behavior (B) of an individual is a function (f) of the total situation or the life space (Lsp) of the individual, consisting of the individual (P) and his environment (E), both of which are interdependent. This relationship can be expressed as: \( B = f(Lsp) = f(P, E) \).

Field theory has limitations and weaknesses, particularly its deductive capacity, and has been criticized by several authors such as Koch (1941) and London (1944). Nevertheless, several advantages support its choice and application as an appropriate theory for agricultural extension purposes (Hruschka, 1969). Complex and diverse situations can be analyzed to study relevant factors influencing behavior. As both a molar and molecular theory, it is interdisciplinary in nature, and has all the ingredients of a theory acceptable for different behavior related disciplines (Madsen, 1968). Its major practical advantage lies in the fact that it is a theory of “change” and “changing”, and consequently not subject to the
criticism that Bennis (1965, p. 339) leveled against other theories in the social and behavioral sciences, that “...they are strangely silent on methods of directing and implementing change”. Furthermore, the theory, and its derived models, can easily be understood by practitioners, mainly because of familiar principles or concepts such as field, force, valence, and movement, commonly used in the natural sciences. Particularly useful is the hypothetical construct of the “force field” of co-existing and dynamically interdependent forces, implying that behavioral change, or the lack thereof, is explainable by this constellation of interacting forces. Behavioral change, it is suggested, can be brought about and directed by changing the force field: by adding or strengthening “driving” or “positive” forces leading towards change, and/or by reducing or eliminating “negative forces” that restrain or prevent change.

Hruschka (1969) made a valuable contribution in drawing attention to the field theory’s value as a theoretical concept for extension, and also in developing broad guidelines for analyzing the field or life space. However, she did not specify or give concrete meaning to the so-called “forces”. This is a prerequisite for their systematic identification and analysis.

Tolman (1967), introducing his theory of action based on the assumptions that behavior is intentional, governed by expectancies, and the outcome of the individual’s behavior space, put forward the concept of intervening variables. He differentiated between three sets of variables: independent, dependent, and intervening. Intervening variables, which make up the “intermediate behavior space” corresponding to Lewin’s “life space”, can be the primary focus of behavior analysis and thus drastically reduce the number of variables studied. In the context of Lewin’s field theory, this implies a distinction between (a) variables that intervene and thus have a direct influence on decision-making or behavior, and (b) variables that are independent and, thus, have a more indirect influence, which is manifested in behavior via the intervening variables. Only intervening variables would qualify as forces directly responsible for bringing about change, whereas independent variables would be regarded as only having an influence on the forces bringing about change.

Using the above framework, the great number of variables already found to be correlated with behavior (Rogers, 1983, p. 261) can be effectively reduced to a “check list” that is surveyable, and is still sufficiently comprehensive to make direct or indirect provision for all causes of behavior. This is achieved by sub-dividing behavior determinants into independent and intervening variables, and concentrating on those determinants that are the most imminent, i.e., the immediate precursors or direct causes of a particular act. The rationale behind this categorization is similar to that used by Tolman (1967), with the difference that not all overt variables are accepted and categorized as intervening variables, but only those that are regarded to be the most imminent and direct causes of adoption behavior. For example, research findings indicate that the influence of variables such as aptitude, education, and age on adoption behavior appears to occur indirectly through intervening variables, such as perception (Düvel, 1975). As such, while a causal relationship cannot be definitely established, an analysis of intervening variables could provide insight into behavior since these variables potentially encompass all influences on decision making and behavior.

**A Practitioner’s Model for Behavior Analysis**

The theoretical framework outlined above, supported by research indicating that independent variables appear to influence behavior via intervening variables (Düvel, 1975), emphasizes the key role of intervening variables in a behavior model. Relevant intervening variables found through research to influence behavior (De Klerk & Düvel, 1982; Düvel, 1975; Düvel & Afful, 1994; Düvel & Botha, 1989; Düvel & Scholtz, 1986; Louw & Düvel, 1978; Marinowitz & Düvel, 1987) are needs, perceptions, and knowledge. These variables are incorporated into a behavior
The proposed model represents a framework for problem conceptualization. In agricultural development, the problem is generally one of poor efficiency (e.g., economic or production efficiency), usually the result of some form of behavior (e.g., practice adoption behavior). The model outlines two basic causal relationships: (a) the poor or non-adoption of appropriate practices \((P_1, P_2, P_3, \ldots, P_x)\) which results in poor efficiency, and (b) the hypothetical causes of poor or non-adoption of any one practice \((P_i)\) that can be traced to the intervening variables of need, perception, and knowledge.

In its simplest form, the poor or non-adoption of a practice can be traced to two basic causes. The individual is unwilling or unable to adopt. Unwillingness can be linked directly or indirectly to a lack of need, unfavorable perception, and/or lack of knowledge. Factors related to inability tend to be independent in nature, and fall mainly under the broad category of personal and environmental variables. They can also be grouped under one of the perception attributes, namely compatibility.

**Needs as behavior determinants**

Needs, drives, motives, incentives, desires, and goals have been associated with forces that incite the individual to action, or that sustain or give direction to motion. They energize behavior and give it direction.

The vocabulary of motivation has as yet not been firmly established, with the result that concepts like drives and needs (Hilgard, Atkinson & Atkinson, 1971; Tolman, 1967), or motives and incentives (Arnold, Eysenck & Meili, 1971; Hilgard, Atkinson & Atkinson, 1971;) are often used as synonyms, sometimes even interchanged. The intention here is to draw attention to this dilemma, and not to provide more clarity or even to attempt a more puristic nomenclature. What is noteworthy, though, is a natural interdependence between needs and related concepts. There appears to exist a field polarity consisting of a need (usually some form of deprivation resulting in disequilibrium or tension) located within the individual, and a goal-object situated in the environment. The goal-object assumes a positive character (positive incentive) if it is perceived by the individual as having a potential need-satisfying capacity, and a negative valence if there is a perceived threat of deprivation (negative incentive).

Like needs (Maslow, 1954), goal-objects exist in a certain hierarchical order, but with a strong inter-dependency. Primary goals, regarded as the direct means of attaining person-located or basic needs (Madsen, 1968) can be achieved through secondary goals, which, in turn, are achieved through tertiary goals. In this way, the lower-order goal represents the means for achieving the higher-order goal. This relationship, in the context of the psychological field of Lewin (1951) or the behavior space of Tolman (1967), has been illustrated by Düvel (1987, p 4). Primary goals that are sought to satisfy one or more basic needs are achieved by certain means or methods (secondary goals), which, in turn, are achieved by means of still more specific objectives (tertiary goals). The preferred path toward the primary goal may not necessarily be the most appropriate, but is perceived as such by the individual.

From the practitioner’s point of view it could be argued that even needs are relatively unimportant, since they are largely reflected in the goal-object(s). Behavior, after all, is directly focused on or oriented toward the goal as a means of need satisfaction. The attractiveness (valence) of the goal(s), as perceived or judged by the individual, could provide a sound basis for explaining and affecting change as it is a reflection of need compatibility. Lending support to this "short-cut" approach, i.e., focusing on intervening rather than independent variables, is the observation that goal valence is easier to measure than basic needs (Heyns & Düvel, 1980), because respondents tend to be more hesitant to reveal personal information. The more direct need-related causes of adoption behavior, specified in Figure 1, are (a) lack of aspiration (1.1), and (b) need incompatibility (1.2).
Lack of or insufficient aspirations to adopt practices and/or engage in agricultural development has been found to be a critical factor in several research studies (De Klerk & Düvel, 1982; Düvel, 1975; Düvel & Brockman, 1992; Düvel & Scholtz, 1992; Louw & Düvel, 1978). Specifically, as shown in Figure 1, this condition may be the result of (a) overrating (or underrating) own efficiency (1.1.1), (b) being unaware of possibilities or the optimum (1.1.2), and (c) being satisfied with the present situation or having a sub-optimal aspiration (1.1.3).

In the context of aspirations, efficiency does not necessarily refer to an objectively calculated cost-benefit ratio, but how the client subjectively rates his/her performance (e.g., in production or practice adoption) compared with some parameter he/she regards as valid or acceptable. These judgements (1.1.1 to 1.1.3) have to do with the perception of a problem, where a problem is regarded as the difference between "what is" (present situation) and "what can be" (desired situation). Figure 2 is an illustration of a perceived problem, showing how the problem (or need tension) is determined by the gap between the existing and desired situation.

If the existing situation, for example, with regard to efficiency of production or practice adoption, is over-estimated due to misperception (1.1.1), the perceived scope of the problem or potential need tension is reduced. If, at the same time, there is limited knowledge concerning the optimum that is achievable (1.1.2), the potential problem and need can be further reduced to an insignificant level. Empirical findings (Düvel & Scholtz, 1986) illustrating the tendency among farmers to over-rate their own efficiency are presented in Figure 3.

The over-rating is based on a comparison between the ratings of specialists (subject specialists and extension workers) and farmers, and on the assumption that the specialists have, because of their wider frame of reference, a more realistic view. That this misperception, and therefore the more limited need, is directly related to adoption behavior and efficiency, is illustrated in Figure 4, which summarizes findings from research studies in different fields (Düvel, 1972; Düvel & Afful, 1994; Louw & Düvel, 1978). As the over-rating or misperception decreases, the efficiency or practice adoption tends to increase.

It is also possible that the problem is correctly perceived, but the individual is satisfied with the situation (1.1.3). The opposite is also possible, namely that the individual underrates him/herself on efficiency. In extreme cases when this happens, the goal-object may appear unattainable, resulting in resignation or frustration on the part of the individual.
Figure 2. Problem magnitude or need tension as influenced by perception

Figure 3. Assessment of rangelands condition by farmers, extension workers, and pasture specialists (Düvel & Scholtz, 1986)
Possible interventions when dealing with lack of aspirations are:

1. In cases of over-estimation or misperception (1.1.1), tactfully advising farmers about the reality of their situation without embarrassing them.

2. In cases where farmers are unaware of possibilities (1.1.2), providing convincing evidence about the optimum, and that its achievement is worthwhile.

3. Whenever an individual is satisfied with his/her situation (1.1.3), this implies contentment, but can also relate to an underlying problem of need incompatibility. In the former case, and particularly if the contentment cannot be attributed to misperceptions (1.1.1 and 1.1.3), an intervention is questionable from an ethical point of view.

**Incompatibility** of suggested solutions to increase efficiency or adopt specific practices with the needs, aspirations, goods or problems of individuals is another cause of non-adoption. The solution does not fit into the life space, psychic field or need situation, in that it is not perceived as a need-related goal, or as a means of achieving such a goal. The solution would have to satisfy a primary, secondary, tertiary or lower order goal.
The relationship between perceived incompatibility of an innovation and the needs of an individual and non-adoption is supported by empirical research (Düvel & Afful, 1994; Düvel & Brockman, 1992; Düvel & Scholtz, 1992). In the example cited in Table 1, Düvel & Scholtz (1992) show that only one respondent perceived a compatibility between his needs and the recommended grazing management system. That respondent was also the only person to completely implement the system. Problems are relevant because of their need-relatedness. They usually represent constraints en route to the goal. These constraints can temporarily overshadow the goal as attention is diverted to the problem, the immediate objective being to overcome it. For this reason, problems are a form of a need and an appropriate focus of any extension or intervention strategy. The specific innovation should, if possible, be compatible with or lead to a solution of the perceived major problem.

Table 1

**Compatibility of needs and rangelands improvement practices (Düvel & Scholtz, 1992).**

<table>
<thead>
<tr>
<th>Economic Need</th>
<th>Respondents reporting compatibility of needs with improved rangelands management</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Compatible</td>
</tr>
<tr>
<td></td>
<td>n</td>
</tr>
<tr>
<td>Increasing profitability of enterprise</td>
<td>1</td>
</tr>
<tr>
<td>Increasing stock production efficiency</td>
<td>7</td>
</tr>
</tbody>
</table>

**Prominence.** The need to identify causes of non- or poor adoption as specifically as possible led to a change in Rogers’ concept of relative advantage, to the notion of relative advantages, elaborating specific advantages and disadvantages in economic, social, managerial, and other areas. Research by Düvel and Scholtz (1992) revealed that innovations may be perceived positively without being adopted, simply because another alternative is preferred or perceived even more positively, i.e., more prominently. This emphasized the need for a comparison between alternatives as implied in Rogers’ (1983) concept of “relative advantage”. However, because of the potential confusion between relative advantage and relative advantages, it was decided to refer to the former as prominence. Prominence is, therefore, similar to Rogers’ (1983) concept of relative advantage, and is a measure of how prominent, or how more or less advantageous (attractive) the innovation as a whole is compared with other alternatives.

An example of the importance of this aspect of perception is the findings of the Düvel and Scholtz (1992) study, where the large majority of respondents had a favorable perception of the recommended innovation (grazing system). However, only 38% preferred it to other alternatives, and there was a highly significant

**Perception**

Although perceptions and needs are related and interwoven, the need to identify all direct behavior determinants as specifically as possible justifies a separate focus on perception. While needs usually relate to all positive or driving forces which, in sum, constitute attractiveness, perceptions are more specific, and are analyzed on the basis of attributes of innovations. Rogers’ (1983) five-way classification of innovation attributes was adapted and integrated with the concept of field forces to define three categories for classifying individual perceptions of the attributes of innovations. As shown in the model in Figure 1, these categories are prominence, relative advantages, and compatibility (Düvel, 1987).
negative correlation ($r = -0.316; p = 0.005$) between perceived prominence and practice adoption.

**Relative advantages.** An unfavorable perception concerning relative advantages refers to both advantages and disadvantages of the innovation. The possible causes of non-adoption could thus be (a) an unawareness of the advantages (Figure 1, 2.2), and/or (b) awareness of disadvantages (Figure 1, 2.3).

Both advantages and disadvantages are need-related in that they contribute to the overall attractiveness or unattractiveness of an innovation. In a certain need context they can constitute positive (driving) and negative (impeding) forces. The imbalance between negative and positive forces as a cause of non-adoption could be the result of unawareness of advantages, or awareness of disadvantages. This would imply that insufficient knowledge is not a negative force, but rather an absent negative force. In practice, this differentiation is not critical. What is important is that the various forces, whether positive or negative, are identified and systematically addressed in extension programs.

**Compatibility.** Whereas relative advantages refer to an innovation or goal-object, compatibility is related to the situation, i.e., the perceived relevance of the innovation in the individual's specific situation. Compatibility, or incompatibility, is not a unidimensional factor but can refer to a wide range of personal, physical, economic, social, and cultural aspects.

This category of behavior determinants does not include compatibility of needs (Figure 1, 1.2). The reasoning behind this is that need compatibility represents basic positive forces, whereas other compatibility aspects are constraints en route to the goal. Therefore, they represent potential negative forces, which, once overcome and once adoption has occurred, are no longer relevant. This means that compatibility aspects are potential negative forces; they can be overcome or neutralized, but do not constitute positive or driving forces. In other words, these aspects, if incompatible, cannot bring about change. On the other hand, the negative forces associated with disadvantages are inherent attributes of the innovation, and consequently continue to exist even after adoption. Viewed in this light, most of the factors preventing adoption due to inability can also fall into this category.

**Knowledge**

Knowledge relevant to innovation or practice adoption can be categorized as (a) basic knowledge or knowledge of principles, (b) knowledge associated with the awareness of relative advantages, and (c) knowledge of the application of an innovation or practice.

The first two types of knowledge are related to each other, but from a motivation point of view only knowledge concerning relative advantages is important. This type of knowledge can be regarded as an intrinsic part of perception and thus largely overlaps with it. It is for this reason that an analysis of perception also includes relevant aspects of knowledge.

Knowledge of principles is important because it provides insight, and has a bearing on the intensity with which the relative advantages are perceived as field forces. Basic knowledge is also fundamental if clients are to become independent or self-sufficient in terms of decision making and self-help.

Practical knowledge is a pre-requisite for implementation or, in terms of Lewin's (1951) model, one of the last areas through which it is necessary to move before goal achievement. This is largely provided for under compatibility with situational factors (Figure 1, 2.4), and supports the conclusion that, through an analysis of perception, most relevant aspects of knowledge can be identified.

**Inability**

Inability is the second major cause of non-adoption. It relates, as shown in Figure 1, to the same situational factors influencing perceptions of compatibility. This means that the reasons for
inability to adopt would be identifiable from the analysis of incompatible situational factors (2.4).

**Application of the model**

The model proposed in this study is a hypothetical construct providing an inventory of potential causes of the non-adoption of a practice or innovation. It lends itself to the planning of research into adoption behavior or, more commonly, for planning situation surveys prior to the planning and launching of development programs.

The recommended procedure entails an initial brief definition of the problem (e.g., lacking efficiency or poor practice adoption) followed by conceptualization of the problem using the model framework (Figure 1). The hypothetical causes provide a basis for constructing survey questionnaires. Survey results will show which of the hypothetical causes are in fact causes, and to what degree.

Figure 5 is a summary of the results of a typical problem analyzed with the aid of this model, showing the constellation of forces identified with regard to over-stocking of natural rangeland, or the non-adoption of the recommended stocking rate. The length of vectors (forces) indicates the percentage of target audience members associated with positive and negative forces. The large-scale non-adoption of recommended stocking rates is explained by the imbalance of negative over positive forces. The results can also form the basis for an intervention program, which would entail the systematic strengthening of positive forces, or elimination of negative forces.

**Conclusion**

The suggested model based on Lewin’s and Tolman’s theories focuses on intervening variables which are assumed to represent forces directly responsible for adoption behavior. Evidence suggests that for analysis and promotional purposes this approach has promising possibilities, but it needs to be further developed and refined. It still has to be ascertained whether additional intervening variables have to be included, and how these can be reliably measured. In designing and refining reliable measuring techniques and devices, attention will have to be given to aspects of valence and probability. Furthermore, refinements and adjustments to the model might be necessary to effectively deal with problems of over-adoption. However, the model as proposed already serves a useful framework in evaluation studies and behavior research, and has also been found to be very useful in facilitating meaningful participation and involvement of community members in the planning and development of extension or development programs.
<table>
<thead>
<tr>
<th></th>
<th>POSITIVE FORCES (% Respondents)</th>
<th>NEGATIVE FORCES (% Respondents)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Correct grazing assessment</td>
<td>18.5</td>
<td>45.0</td>
</tr>
<tr>
<td>2. Need for rangelands improvement</td>
<td>55.0</td>
<td>45.0</td>
</tr>
<tr>
<td>3. Aspiration scope: Rangelands improvement</td>
<td>29.6</td>
<td>70.4</td>
</tr>
<tr>
<td>4. Correct grazing management assessment</td>
<td>34.2</td>
<td>65.8</td>
</tr>
<tr>
<td>5. Correct stock condition assessment</td>
<td>42.5</td>
<td>57.5</td>
</tr>
<tr>
<td>6. Aspiration scope: Need for stock improvement</td>
<td>29.8</td>
<td>100.0</td>
</tr>
<tr>
<td>7. Primary Goal: Rangelands improvement</td>
<td>24.4</td>
<td>75.6</td>
</tr>
<tr>
<td>8. Primary Goal: Stock improvement</td>
<td>39.0</td>
<td>61.0</td>
</tr>
<tr>
<td>9. Need compatibility: Rangelands improvement</td>
<td>16.8</td>
<td>83.2</td>
</tr>
<tr>
<td>10. Need compatibility: Management improvement</td>
<td>10.5</td>
<td>89.5</td>
</tr>
<tr>
<td>11. Need compatibility: Stock improvement</td>
<td>7.3</td>
<td>25.7</td>
</tr>
<tr>
<td>12. Advantage awareness: No overgrazing</td>
<td>51.6</td>
<td>49.4</td>
</tr>
<tr>
<td>13. Advantage awareness: Camp resting</td>
<td>5.2</td>
<td>94.8</td>
</tr>
<tr>
<td>14. Advantage awareness: Improved stock condition</td>
<td>10.5</td>
<td>89.5</td>
</tr>
<tr>
<td>15. Prominence: Stock reduction</td>
<td>16.5</td>
<td>19.4</td>
</tr>
<tr>
<td>16. Theft*</td>
<td>70.6</td>
<td>2.7</td>
</tr>
<tr>
<td>17. Drought*</td>
<td>39.0</td>
<td>61.0</td>
</tr>
<tr>
<td>18. Investment in cattle</td>
<td>7.5</td>
<td>53.4</td>
</tr>
<tr>
<td>19. Stock numbers as status symbol*</td>
<td>39.3</td>
<td>92.5</td>
</tr>
<tr>
<td>20. Low sale price of cattle</td>
<td>26.3</td>
<td>22.1</td>
</tr>
<tr>
<td>21. Custom: Loaning cattle*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. Equitable implementation of stock reduction*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. Reduced cattle numbers*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The absence of a positive force does not necessarily imply the existence of a positive force.

Figure 5. Positive and negative forces pertaining to stock reduction, N = 95 (Düvel, 1995)

References


COMMENTARY

THE PUBLIC SECTOR AGRICULTURAL EXTENSION SYSTEM IN EGYPT: A PLURALISTIC COMPLEX IN TRANSITION

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Abstract

A description of the agricultural extension system in Egypt reveals a complex of agricultural information transfer services mainly in the public sector with a small private sector component. Drawing from a review of secondary sources and their personal experiences, the authors suggest that the public sector extension system is in a transition phase, characterized by decentralization of programming decisions and operations, and a shift from an agricultural performance orientation to a more comprehensive, community development perspective. Implications of these trends are discussed.

Egypt's Agriculture Sector

Agriculture is a dominant sector in the Egyptian economy. It generates 20% of the gross domestic product and employs 35% of the labor force. Because only three per cent of the land is arable, holdings are small and farming is intensive. Nonetheless, favorable agro-climatic conditions, fertile soils, perennial water supply, and skilled farmers have enabled Egypt to achieve impressive yield levels in various crops (World Bank, 1995). Egypt also has a strong comparative advantage in fruits and vegetables, cotton, and wheat (USAID, 1994; World Bank, 1993).

Policy reform in the agriculture sector initiated in the mid-1980s removed stringent government controls on crop and area allotments, prices, input supplies, and marketing, and moved agriculture toward a free-market orientation. As a result of this reform, well-focused production support services, and technology dissemination by a research-extension system (Scoullar, 1994; World Bank, 1995), there has been an impressive increase in the productivity of commodities such as wheat, maize, cotton, and rice. Gains in productivity have not, however, been accompanied by growth of a modern marketing system (Scoullar, 1994; World Bank, 1995). Furthermore, farmers do not have access to market information, which could be gathered and disseminated by an extension service (Narayanan, 1991).

Most of the agriculture in Egypt is in the hands of individual farmers. Private farmers' groups have not been adequately developed. Most
cooperatives have traditionally been controlled by the government to support input distribution and marketing of controlled crops such as wheat, rice, and sugarcane. Thus, cooperatives lack the flexibility to take advantage of market forces and business opportunities (World Bank, 1995).

**Egypt's Agricultural Extension Complex**

Agricultural information and extension services are part of a pluralistic complex involving multiple systems within the public and private sectors to provide information, education, and problem solving assistance to farmers and their families. In Egypt, as in other countries, the tendency is for the public sector extension system, at least in theory, to serve the vast majority of small farmers, while the private sector suppliers and consultants work with corporate farms and large estates.

**Public Sector Extension**

Egypt's public agricultural extension system formally began as a government service in 1953. Since then at least nine presidential and ministerial decrees have reorganized and restructured the system. The present structure is the result essentially of decisions made in 1985.

Basically, agricultural extension is a government-operated, ministry-based system, functioning at two levels: the ministry or national level and the implementation level in governorates-districts-villages. Figure 1 shows the overall structure of the system, and figure 2 the structure at the governorate level.

**Ministry Level**

The Central Administration for Agricultural Extension Services (CAAES), one of seven sectors in the Ministry of Agriculture and Land Reclamation (MALR), is the key national level organization. It is comprised of five functioning departments -- Extension Units and Agricultural Advisory Council Extension Programs, Extension Teaching Methods, Field Monitoring, Rural Development, a New Communities Department to be established - and a Department of Marketing Extension which is still in the planning stage. These departments provide technical supervision to Subject Matter Specialists (SMSs), Village Extension Workers (VEWs) and recently established district level Technology Transfer Specialists (TTSs) in the governorate extension services. Administrative supervision of extension services at the governorate level is the responsibility of agricultural directorates in each governorate. This dual supervision represents a source of conflict for both SMSs and VEWs.

Adding to this complicated structural arrangement are 15 other commodity-oriented central administrations in the Ministry, a majority of which are involved in extension, and have their counterpart structures and staff at governorate level. In general, CAAES extension specialists appear to work only with the central administration staff in crop production. The other commodity central administrations, such as animal production, horticulture, pest control, plant protection, rice, soil and water, sugarcane, and wheat have their own extension staff, who are untrained in extension methodology.

Research programs and their coordination with extension are a function of the Agricultural Research Council (ARC), an autonomous body under the Minister of Agriculture. The ARC is organized into research and extension sections. A Deputy for Research heads the research institutes and regional research stations, all of which are commodity or problem oriented, except for the Agricultural Extension and Rural Development Research Institute (AERDRI). A Deputy for Extension heads the units on Extension and Subject Matter Specialization.

In addition, four regional research and extension councils were authorized by recent ministerial decrees (Nos. 1523/1993 and 148/1994) in an effort to bring research and extension services closer to farmers, and to open up the decision-making process to local interests. These councils are intended to (a) discuss agricultural production constraints and suggest area-specific
solutions, (b) formulate research and extension programs, (c) coordinate and integrate university and research centers’ programs, (d) develop mechanisms for supporting research and extension, and (e) monitor and evaluate research and extension activities.

Implementation Level

At the implementation level, extension is organized with administrative and technical staff at the governorates, districts, and villages. A governorate administers about 170-180 districts. Each district administers 35-40 villages, and each village is organized into 150-200 geographic blocks called "hodes".

The staff at the implementation level have distinct roles. The role of the SMSs who are employed by the ARC is to assist the other extension workers (TTSs and VEWs), but there is some question as to the efficacy of this presumed assistance. Indeed, there is a lack of collaboration, which appears to be due, at least in part, to the fact that the SMSs are employees of the Agricultural Research Center (ARC) and not the CAAES. They are reported to be providing assistance primarily for high-value crops.

The Technology Transfer Specialists (TTSs), recently added to the extension services at central, governorate, and district levels, serve as the link between VEWs and district-level SMSs. Their principal role is to assist VEWs with the dissemination of technical information to the farming community, and to facilitate interaction among farmers, researchers, and extension personnel. In practice, however, there is little linkage between farmers, researchers, and VEWs.

VEWs based in villages are the cornerstone of Egypt’s extension effort, extending new agricultural technologies directly to farmers. VEWs have a number of untrained assistants who help with sundry tasks. In theory, there is at least one VEW and several village assistants for each of the 4,000-5,000 villages in Egypt.

Obviously, the CAAES with its administrative and technical structure at the ministry and implementation levels, and the agricultural directorates at the governorate level, are the major functionaries in the public sector agricultural extension system of Egypt. The CAAES has employees at the district (TTSs) and village (VEWs) levels. In addition, extension functions are carried out through (a) the Ministry's commodity-oriented central administrations of different high value crops, (b) individual projects funded through bilateral and international arrangements (AID, World Bank), and (c) special regional-level campaigns for particular crops or new practices, coordinated by the ARC. As a result, public sector extension in Egypt is a pluralistic complex of extension services with a large body of staff organized under different administrative and technical structures attempting to influence the productivity of agriculture in the country.

This overlapping, multiple system of public extension is reflected in the large number of extension personnel, estimated at around 25,000, in government services. Exact figures are hard to determine, and records are unsystematized. Nevertheless, it is estimated that approximately 5,000 VEWs and 14,000 extension staff, including village assistants, work at the village level. An additional 3,600 technical staff belong to the ARC, whose research personnel, according to Presidential Decree Number 19, devote at least 30% of their time to extension-related activities. The AERDRI which conducts extension research, adds another 1,000 part- and full-time ARC government staff who are involved in extension activities. In sheer numbers, therefore, agricultural extension is the largest sector in the MALR.

A Multiple Extension System.
The government administration of agriculture itself employs a total of about one-half million people, nearly 12% of the formal agricultural labor force, and 12% of all government employees. Only a fraction of these workers is highly skilled. Poor pay, and lack of well-trained staff are significant problems for the administration. In addition, there is the problem of overstaffing as a result of the government's guaranteed employment policies for secondary school and university graduates. Reform measures are being taken to make proper use of human resources while relieving the administration of excess staff.

Private Sector Extension

Extension in the private sector is conducted by private companies that provide information and advisory services to corporate farms, and consultants who sell their services to large estates, and undertake extension and farm management activities. In addition, large private producers of high-value crops such as fruits and vegetables often have their own staff of horticulturists, agronomists, and engineers. Often, these large producers will have production contracts with small producers, and use extension specialists to work with these
producers, who sometimes may be large in number.

Few non-profit, non-governmental organizations (NGOs) are committed to rural development, and none of them is involved in supplementing or complementing the work of the public sector in extension. This is a serious gap which needs to be considered by NGOs concerned with agricultural, rural and human resource development.

This review shows that Egypt's extension system is in transition. On the one hand, the private sector is gradually expanding its influence in specific high-value commodities with large private or corporate farms. On the other hand, extension in the public sector is broadening the scope of its programs, and making a concerted effort to decentralize from the central ministry to regional/governorate levels.

Broadening Scope of Public Sector Extension

The role and purpose of agricultural extension vary considerably in different contexts. Analysts have interpreted extension's function according to their individual perspectives and the purposes they assign to it. The role and purpose of extension in Egypt is expanding from a purely agricultural performance orientation to rural community development, and indeed it appears to be moving toward a comprehensive service for farmers, farm families, youth, and rural communities.

The agricultural performance orientation views extension basically in terms of improving production and profitability of farmers. The rural community development perspective expects extension to advance rural communities, including the improvement of agriculture. The comprehensive, nonformal, continuing and community education orientation views extension as a provider of nonformal agriculturally-related continuing education for multiple audiences: farmers, spouses, youth, communities, and urban horticulturists (Rivera, 1989).

In developing countries like Egypt, emphasis has generally been placed on the development, improvement and expansion of agricultural performance services. The tendency among policy makers has been to view extension from a narrow but practical perspective as a system for agricultural information and technology transfer. This performance-oriented view aimed at greater production, productivity and income-generation is experiencing a broader operational interpretation. The current challenge is not just to make existing services function better, but to appraise the potential role and contribution of agricultural extension within the society's agricultural, institutional, and human development strategy. Therefore, Egypt's public sector extension is being expanded in two distinct directions: (a) commodity-oriented services, and (b) rural and human development, including family planning. At the same time, the Ministry is considering issues of privatization and decentralization of agricultural extension services.

Decentralization of Public Sector Agricultural Extension

Many countries are privatizing, decentralizing or otherwise changing their agricultural extension systems. High-income countries, including federally constituted countries, are privatizing through contractual arrangements, or charging farmers fees for agricultural information. Middle-income countries are following suit, sometimes devolving authority to subgovernments for mobilizing revenue and delivering extension services, or creating voucher systems, like Chile and Costa Rica, and promoting private sector extension consultant services.

Developing countries, especially those with a socialist background are approaching the challenge of decentralizing agricultural extension more tentatively. Egypt, for instance, is gradually deconcentrating its national authority for extension to the regional level (Rivera, 1996a; Rivera, 1996b). Deconcentration is defined as the transfer of effective control by central agencies to regional,
provincial, state, governorate, district or other field level offices (Rondinelli, 1987). In addition, this strategy may include the participatory involvement of farmers in the managerial processes.

At present, extension decentralization in Egypt is equated with deconcentration strategies. Some officials claim that the extension system is already decentralized because it is implemented at the governorate-district-village level, and regional bodies are, in principle, responsible for working with governorates.

The establishment of Regional Research and Extension Councils mentioned earlier is an effort to bring research and extension services closer to farmers and to open up the decision-making process to local interests. These councils indicate a clear movement toward regional deconcentration of the national agricultural extension system.

For Egypt, as for many developing countries, the question is what decentralization strategy is best to achieve the goals of greater efficiency, increased choice, and enhanced user responsiveness. Once this decision is made, then the next issue is the feasibility of implementing a decentralization strategy, i.e., the possibility of winning political acceptance for a given decentralization strategy.

If Egypt's subnational (governorate) governments are to acquire larger proportions of the public sector budget, they must be provided budget institutions that can constrain fiscal excesses, and be given the technical expertise to plan, implement and evaluate extension programs. When revenue raising is centralized and expenditures are decentralized, a higher level of spending ensues. Local capacity to regulate local taxation and greater reliance of local governments on their own resources appear to be essential to the success of decentralization (Hommes, 1995).

Concerns for human, social and agricultural development are becoming important challenges to agricultural extension in Egypt. Human development programs in particular seem likely to become a main pillar of Egypt's efforts to revitalize agricultural extension services.

Conclusion

Examination of Egypt's public sector agricultural extension system reveals a multifaceted agricultural information transfer complex that is in transition. It is observed that the system is moving toward rural development programs in addition to its traditional agricultural extension activities, and is making efforts to decentralize its operations.

Egypt's public sector agricultural development strategy will likely continue to focus on promoting smallholder production, and increasing smallholder accountability for program development. It appears that such a strategy can best be pursued by empowering farmers in the management decision-making processes of agricultural development support services, such as research and extension.

The participation of farmers could be ensured through the creation of village-level farmer advisory groups, district farmer advisory committees, and governorate farmer advisory councils. These groups would improve agricultural and rural program relevance and outcomes, and empower farmers toward greater involvement and responsibility for managing agricultural development support services.

At present, major questions are being asked: Who will pay for public sector extension, and how will the funds be acquired? Who will deliver, and to whom? Underlying these questions are equally fundamental questions such as who will control, and what will be the purpose of agricultural extension; what will be the "right mix" of public, private, and mixed-type extension services for clientele conditions; what structural and/or functional changes should be made to improve these systems. While involving difficult questions, current directions in the development of Egypt's agricultural information/extension transfer complex suggest
a major reformulation of extension policy in the new millennium.

References


Endnotes

1 In general, the extension complex includes a diversity of private enterprises: (i) for profit, such as domestic enterprises--large farm estates, domestic firms, and cooperatives--and multi-national enterprises (MNEs) and their subsidiaries; (ii) membership associations, e.g., farmers associations, and (iii) non-profit organizations, e.g., the NGOs. Domestic and multi-national firms, despite certain differences, share a common market orientation: they all seek to make a profit by selling goods and services. Membership associations share an interest in profit-making but are not set up for that purpose. NGOs, in general, are non-profit. Thus, we note two basic types, or differences, among private sector organizations, namely, those which are market-oriented and those which are not.

The array of providers, purposes and functions that can be attributed to agricultural extension justifies calling it "a complex." Its providers are not only multiple but involve both public and private sectors, and often these overlap or are mutually supportive. However, different providers will tend to emphasize distinct functions--whether information (technology) transfer, education by way of farm-management training, or problem solving through on-farm and office consultation. This complexity of provision and purpose contributes to making discussion of agricultural extension difficult and sometimes confusing or contradictory.

In addition, a general examination of different agricultural institutional settings shows that extension-type functions may be primary to an agency or organization, as with the agricultural extension service; secondary, as with private firms and cooperatives; or supportive, as with credit institutions, supply agencies, and marketing agencies. Also, new extension-type activities are being developed, such as "marketing extension" (Narayanan, 1991).

2 In discussions of public sector production extension systems a frequent assumption is that there is one unified extension system. This is not usually the case; indeed, there are usually multiple systems of agricultural extension within the same country, employed by a variety of agencies and programs. Production extension services may exist independently for crop, livestock, forestry and other agricultural products.

Rarely is only one public agency in charge of all production extension activities in a country--patterns differ from country to country. In many of the English-speaking Caribbean countries, for instance, separate divisions exist for provision of livestock and crops services. Indeed, agencies other than the Ministry of Agriculture are normally responsible for export crops, such as tea, cocoa, coffee, rubber and coconut. Research, extension and training for a single commodity are usually based either in a separate Ministry or in an export-oriented board. Thus, we see that various agencies may be responsible even for production extension.

A different organizational pattern prevails in some West African countries previously under French colonial rule. In these cases, the Ministry of Agriculture is responsible for planning and coordinating agricultural development, maintains only a few central services (administration, staff training, etc.), and gives responsibility for research and extension to parastatal organizations or special project implementation units that often operate free of central government regulations concerning personnel recruitment, contracting, budgeting, procurement and other matters.

3 Governorates represent the intermediate government level between the national government and municipalities. There are 24 governorates (comparable in size to counties in the United States).

4 There is a lack of clarity between what is research and what is extension. Since the extension sector, including the various central administrations as well as CAAES, falls under the supervision of the ARC, it is unclear as to what constitutes extension and what constitutes research. Subject matter specialists in the various commodity-oriented central administrations often consider themselves to be extension personnel although they have no training in extension processes. What constitutes extension needs to be clarified throughout the entire agricultural sector.
BOOK REVIEW


“Development is possible only through effective communication.” This succinct statement at the close of Robert Agunga’s preface effectively summarizes the central argument of the book.

From the outset, Agunga is clear about his assumptions. He claims that the strategy proposed throughout the book rests on three propositions. First, “National, regional or even continental development is predicated on development success at the village level.” (p.1) Agunga advocates a people-centered approach that prepares people to take charge of their own development. People-centered development, he asserts, is essentially a communication process because it requires change agents to engage in a dialogue with the people they seek to help.

Second, Agunga states that most development projects and programs fail as a result of ignorance. This ignorance is reflected in the development professional’s lack of expertise to realize established development policy guidelines. Agunga contends that communication scientists who have expertise in both development and communication are needed to provide development support across the spectrum, from capacity building in the village to advising policymakers at the highest levels.

Agunga’s third assumption is based on the definition of development as a process of “empowerment.” “If development is empowerment, then communication is the key to development because communication is the means by which people are empowered” (p. 2). Enabling people to make their own decisions requires professionals who understand communication theory. “A careful examination of development practice reveals the need for effective communication to ensure active people participation” (p. 79).

Agunga admits that one limitation of the book is the assumption that readers are not beginners in development studies, and require fewer explanations of common development terms. However, the book’s logical structure, clear format, and ample diagrams provide sufficient background for students of development studies, as well as the targeted audience of development practitioners and policy makers. Chapter summaries and discussion topics make the book especially conducive for teaching. Besides documenting the evolution of development theory and practice, he contends that unlike much of the development literature his perspective is unique. Growing up in Africa, and working in development projects in many parts of that continent before becoming a professor in the United States, Agunga’s perspective incorporates intimate knowledge of both development worlds.

Agunga divides the book into four sections. Part I situates the reader in the historical, political, and social context of development theory. Beginning with the pre-colonial era, and continuing through the colonial and Cold War years, Agunga provides the historical context for relationships among the first, second, and third development worlds. He examines problems faced by third world countries, characteristics of traditional aid projects, and the culprits of project failures. Agunga paints a bleak picture in a discussion on wasted aid. He quotes, “Virtually all completed development aid projects have failed.” (Hammer, 1994). “Ongoing projects,” he continues, “are not described as failures because these are still in the process of failing” (p. 79).

In the arena of international development, conceptual frameworks based on economics, urbanization, industrialization, and technology
transfer have gradually been replaced by integrated rural development models that reflect people-centered rhetoric. However, Agunga claims that without qualified development support communication professionals to enable full participation of all stakeholders in the implementation of development objectives, these participative models provide little more than lip service to beneficiaries’ priorities. “A fundamental reason why projects fail, particularly the integrated rural development programs, is that these ventures are usually modeled according to the wishes and ambitions of the donor agencies or lenders rather than being based on the needs and concerns of the beneficiaries” (p. 204).

In Part II of the book the reader is introduced to the importance of a holistic, systems approach to the dynamic complexities of the development process, especially integrated rural development schemes. The strength of the systems approach is that in this framework development programs can foster a supportive environment for all stakeholders to cooperate. However, the more complex the development process, the greater the need for communication to facilitate it.

The crux of the book is outlined in Part III: A Case for Communication in Development. In this section, Agunga outlines his vision of a human-centered communication approach to development, highlighting the central role of the new breed of communication specialist, the development support communicator (DSC). The DSC is defined as a communications generalist who, crossing disciplinary boundaries, understands how the art, craft, and science of communication can work for change. A DSC plays a support role to all stakeholders by the practical application of communication knowledge and skills to development projects.

Agunga maintains that an effective DSC must be able to (a) advise project managers and other decision makers on development planning and implementation, (b) produce communication materials to promote development campaigns, and (c) assist frontline workers in organizing people for participatory development. He characterizes the development support communicator as “a new professional capable of bringing participating development agencies together to work toward ending world hunger and poverty” (p. 264).

In Part IV the author uses a Southern Africa Project case study to argue for the development support communication strategy in alleviating poverty. The essence of this strategy is:

First, people have to be empowered, through organizing and capacity-building, to take action to improve their lives and to hold their leaders more accountable. Second, policymakers, particularly those in developing countries, need development experts to assist them in decision-making leading to policies that benefit the poor. Third, holistic development requires that activities of many agencies be coordinated to ensure that farm and allied inputs reach rural people in a timely manner, and to avoid duplication and waste of resources. Fourth, field agents, such as extension workers and their district supervisors, need training in communication and development to understand the dynamic and complex nature of the development process if they are to serve as true agents of change. Finally, development institutions, if they are to be sustainable, must strive for financial and managerial self-sustainability. (p. 269).

Agunga uses the case study to demonstrate how communication can make projects work better, and that participation is essential for development. The example shows how development support communication serves as an institutional framework for development, and how countries can be assisted to develop self-sufficiency in this area.

Agunga concludes the book with a summary of the elements of a human-centered strategy for sustainable development. Despite early pessimism on failed development interventions,
the author concludes that the post-Cold War era holds great promise for developing countries. But, a shift in perspective must take place. Instead of viewing development aid potential as a top-down perspective (what the West will do), the focus must be on what developing countries must do themselves.

What I find alluring in Agunga’s focus on communication is transcending traditional discipline boundaries with communication theory insights. This “transdiscipline” (Scriven, 1993) of communication theory accommodates contributions of the different disciplines of sociology, social work, and development studies and is not hemmed in by one or other theoretical position or disciplinary boundary.

Although numerous references are made throughout the book to the role of politics in development, I remained uneasy with Agunga’s seemingly dismissive attitude toward the political agendas of various stakeholders. On more than one occasion he points to the “favorable climates that international development assistance organizations and Third World governments have created for sustainable rural development and poverty eradication” (p. xvii). He claims that what has been lacking is the development professional’s know-how to use these new apertures.

No one will dispute that development is politics. However, my contention here is that what these critics consider to be “lack of support” from the government is often not the result of a deliberate act but rather due to difficulties of allocating limited resources or simply not knowing how to do things right (p. 211).

World Bank sources indicate that URADEP failed because of “neglect and indifference” on the part of the directors of the Ministry of Agriculture. What the Bank did not indicate, however, is why these directors became antagonistic to the very program they had requested. World Bank/ODA planners failed to foresee the implications of the integrated strategy for Ghanaian officials, and consequently failed to reach agreement on a program of integration acceptable to these officials. (p. 207).

Agunga asserts that although not easily done, the DSC professional will have the knowledge and skill to circumvent or overcome these obstacles. He is indeed setting up a difficult task for the newest professional on the block, especially in light of his earlier statement that all development projects have failed or are in the process of failing.

Finnegan, Bracht and Viswanath (1994) warn of the political nature of social change. The DSC person understands that development is essentially a political game replete with lusts by government leaders for even greater power and with donor agencies giving conflicting signals depending upon the politics of the recipient country. The communicator has to learn to survive politically; often, this is not easy. However, the chances of success are greater if the DSC expert places the people at the center of decision-making. Ultimately, politicians must account to the people (p. 262).

Donahue (1986) raises several questions about the long-term benefits of an empowerment model. He posits that once a people have been politicized, the leaders have to be ready to deal with the increasing demands of a democratized citizenry. The organization and mobilization of citizenry inevitably leads to increased tension with those who have traditionally controlled access to resources.

Agunga offers inadequate documentation that governments are ready to enter into the dialogue he proposes, or are willing to support the structural changes needed to alleviate some of the problems outlined in the book. He states that a number of international nongovernmental organizations are beginning to police government corruption in development policies,
and enforcing accountability of all parties. These organizations “seek to prevent corrupt practices especially in Third World governments, presumably by exposing and ridiculing the culprits.” But rather than seek out and punish rule offenders, “the task of the development rules-keeper is...to assist and encourage practitioners to abide by established rules” (p. 196). Again, this analogy of “rules keeper” seems to trivialize the power behind these corrupt elements, and the limitations they place on people-centered development schemes.

Agunga raises the issue of accountability several times throughout his book. In a positive vein is the call for accountability of governments to their people. On a more negative note is the implication of inappropriate requests for accountability by donor organizations. Ample documentation does, indeed, exist of unfortunate bilateral “tying of aid,” thereby hampering effective development outcomes by demanding strict and inappropriate conformance of the donor guidelines. However, lamenting the abandonment of certain countries' policies of “giving without asking, that is, with no strings attached,” (p. 116) is equally inappropriate in the ideal model of sustainable development. In a partnership, there is accountability for all stakeholders. Giving without asking, as if a developed country has nothing to give, is patronage of the highest order. If the new development model is to succeed, the message needs to be clear that all stakeholders are important partners in the development process.

In the current political climate where pluralism dominates social policy discourse, different approaches may well co-exist or be configured in different combinations in various social, economic, and political environments. Agunga’s focus on a communication approach implies continual dialogue. Dialogue may foster a development environment that avoids polarization of advocates of seemingly conflicting strategies who claim only one valid path for promoting positive change.

Agunga’s purpose is to convince donor agencies and third world leaders of the centrality of communication in the development process. His ultimate goal is that the use of development support communication become institutionalized in all development endeavors. Communication development support as a standardized, or institutional approach, has the potential to generate a shared conceptual language, offer a framework for programmatic interventions, and help articulate the goals of sustainable development in third world countries.

References


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Book Review


In 1990, the United Nations Development Program (UNDP) surprised the world when it published a unique report entitled “Human Development Report”. The report described a new measure of human development called Human Development Index (HDI). Though this index has limitations with regard to quantifying social welfare, it has several advantages over Gross National Product (GNP), a commonly used indicator of development which only measures economic development, and not human development. HDI incorporates social welfare indicators of human development such as people’s longevity, and their access to education.

UNDP has continued to publish Human Development Reports annually, and there are seven volumes now in print. The main theme that runs through all reports is the notion that for any development to be meaningful, it has to be "people centered". The central message of the 1990 report was that while growth in domestic production (GDP) was absolutely necessary to meet all essential human objectives, it is important to examine critically how this growth translates, or fails to translate into human development in the various countries. The report was the first of its kind to make a contribution to the definition, measurement, and policy analysis of human development.

The 1992 report reminded one of the famous Biblical quotation, “whoever hath shall be given more”, and pointed out the significant fact that we live in a world of income imbalances. For instance, the richest 20% of the world population receives 82.7% of the world’s income! The next 20% receive 11.7% of world income, while the third 20% receive a paltry 1.4%. What an unfair world? What is much more ironic is that world trade favors the richest 20%, who are at least 150 times richer than the poorest 20% of world population. Since development is a people issue, it is important that world income imbalances be addressed by all world leaders.

The 1993 report focused on the democratic reform wave that was sweeping the world at that time. It noted that people in Africa, and the newly independent states of the Soviet Union and Eastern Europe were determined to participate in the events and processes that would shape their lives. It also emphasized that the best route to human development is to unleash people’s entrepreneurial spirit to take risks, compete, innovate, and determine for themselves the direction and pace of development.

The 1994 report was devoted to the issue of sustainable human development, which not only generates economic growth but distributes its benefits equitably, regenerates the environment rather than destroy it, and empowers people rather than marginalizes them. Sustainable development gives priority to the poor, widens their choices and opportunities, and allows for participation in decisions that affect their lives.

The 1995 report noted that progress in the 21st century would be judged by one major yardstick: “Is there a growing equality of opportunity between people, and among nations?” The central message of the report was that human development must be engendered.
and broadened to widen opportunities for all people. Issues such as gender disparity must be addressed, and the empowerment of women must be an integral part of a sustainable human development paradigm.

The 1996 report which will be reviewed at some length focuses on the complex link between human development and economic growth. The theme of human development and how it can be enhanced by investing in people forms the basis of the report. It is shown that for the last fifteen years, world income inequality has increased both between nations and within nations. A major point emphasized is that if this trend continues, the economic disparities will no longer be termed inequitable but inhuman. It is encouraging to note that the overall rate of human development in the world has shown signs of improvement. This does not mean that leaders and policy makers have to be complacent but they have to work smarter and harder to raise the levels of human development of their countries. A critical point raised is that the link between economic growth and human development is not automatic. There is need for policy interventions so that economic growth and human development can be mutually reinforced. People-centered development means empowering people to make critical decisions central to their development. It also implies participation in the development process. This is very relevant to agricultural and extension workers since they are people-serving professionals. For instance, extension workers should give farmers an opportunity to make farm decisions, and to implement whatever new technologies they learn in extension programs.

Global economic growth and human development trends indicate that inequality is on the rise. The term balance sheet normally used by accountants to refer to the financial position of a firm is appropriately used in the report to show the state of human development of various countries of the world. This is real creativity by the authors. For the future reports, they may have even to refine their balance sheets by showing net gain or net loss of human development the same way accountants do. It is noted that most world leaders do not consider the fact that growth is the means and not an end in itself. Economic growth should be looked at not by the volume of goods and services it produces but by how it enriches people’s lives. Having poor people in the midst of plenty is true. Thus, growth should be humanized through equity. One of the barriers in realizing this is human greed. As the Indian leader Mahatma Gandhi observed “The earth provides enough to satisfy every man’s need but not every man’s greed.”

The reasons for failure of basic needs strategies in most countries are discussed. Structural Adjustment Policies (SAPs) which replaced the basic needs strategy in developing countries with the aim of balancing budgets ended up unbalancing people’s lives. Therefore, the only way to balance people’s lives is by involving them in the development process.

The report makes clear that human development goes beyond income and growth, and includes the full flourishing of all human capabilities. New growth theories confirm the human development position that the driving force of all economic growth is people. What increases productivity is not an exogenous factor, but endogenous factors related to the behavior of people responsible for the accumulation of productive factors and knowledge. A critical issue raised is empowerment of people by expanding their capabilities. This includes enlargement of choices, and thus an increase in freedom, allowing people to participate in or endorse the decision making that affects their lives. It is emphasized that people should not be passive beneficiaries of a process engineered by others. Instead, they should be active agents in their own development. It is further revealed that good economic growth is growth that promotes development in all its dimensions. Active democracy can aid economic growth in that more open and transparent forms of governance can reduce corruption and arbitrary rule that is common in most countries of the world. Democracy, participation, and empowerment should be valued in themselves whether they enhance growth or not. Human
capital, the most valuable asset in the world, accounts for 64% of the world’s wealth, as noted in the book. It is shown that economic growth expands the material base for the fulfillment of human needs. However, the extent to which these needs are met depends on the allocation of resources among people, and the distribution of opportunities, particularly employment. An interesting observation made in the report is that income is more likely to be spent on human development when women control the cash in the household. Therefore, improving the position of women also has some strong positive effects on their children.

The point is made that government action in all countries of the world should support human development, given its intrinsic value. Also, there are strong economic arguments that support why government action is required to enhance human development. The report shows that most countries of the world squander huge sums of money on budget items that do nothing for human development, and most of the time in fact undermine it.

The role of education in enhancing human development and change in a country’s pattern of international trade is discussed. An important point made is that the only way to improve growth by increasing equality is through more egalitarian distribution of human capital through investment in education.

Another point closely linked to human development is the notion that economic growth has the potential to enhance human capabilities and enlarge people’s choices. However, for this potential to be realized, there must be a steady expansion in opportunities to allow people to make improved choices. Employment is defined here as referring to all ways of securing a livelihood, not just wage employment. All governments should advocate economic growth that expands employment opportunities and meets people’s aspirations as a priority. Without basic literacy and numeracy, people’s ability to adapt to changing production methods and technologies will be severely constrained.

Agricultural and extension professionals should find this series of reports, particularly the 1996 report, very useful. The new measure of human development, HDI, could be applied by these professionals to their field in their respective countries. For instance, it may be necessary to determine the adult literacy of farmers, their longevity, and real purchasing power in a given extension program. Once a HDI for farmers is determined at a regional level, then appropriate strategies can be used to raise the index. The statistical data on food production per capita, agricultural production, food consumption, and daily calorie supply per capita for 174 countries of the world shown in the 1996 report is invaluable reading for agricultural and extension educators.

This series of human development reports contain comparative data on human development indicators for 174 countries. Rarely can one find such useful statistics relating to this many countries of the world assembled in a single report. Scholars and practitioners from all fields of study should find the series of reports very useful in their research projects, and programming efforts.

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