Teaching Competencies Needed by Extension Workers in Transferring Agricultural Technologies to Malaysian Farmers

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The mission of Extension is to extend education to people. The emphasis in extension education is on helping people to help themselves (Gonzalez, 1982; Patton, 1987; Sanders and Mauder, 1966). With changes and developments in communication technologies, education and socio-economic standards in the last few decades, agricultural extension education has undertaken a change in strategies (Patton, 1987). To keep pace with these rapid developments, the delivery of quality extension education programs is dependent upon two elements: (a) an adequate amount of appropriate information and technology; and, (b) sound teaching approaches to bring about the desired change (Zainuddin and Teh, 1982). The major role of extension professionals is to diffuse information using appropriate teaching strategies, procedures, and techniques (Maatoug, 1981).

Previous studies have identified various competencies thought to be needed by extension professionals in the areas of understanding human behavior, program planning, understanding the teaching/learning process, teaching strategies and teaching tools/aids, and program evaluation. It was found that these skills should be possessed by Extension professionals in order to effectively perform their role as changeagents (Davis, 1963; Gonzalez, 1982; Keregero, 1981; Teh, 1980).

Few studies have been conducted that have placed an emphasis on the corpetencies related to teaching thought to be needed by Extension professionals in a developing country like Malaysia. What skills in teaching are needed by Extension professionals in developing countries? When should competence in teaching be learned? What emphasis should be placed on learning about teaching in training Extension professionals?

Purpose and Objectives

The purpose was to determine the competencies related to teaching perceived to be needed by Malaysian Extension professionals in transferring new agricultural technologies to farmers in Malaysia. The specific objectives of the study were:

1. To identify teaching competencies perceived to be important to Malaysian Extension personnel in teaching adult farmers.

2. To identify when teaching competencies should be learned by Malaysian Extension personnel.

Procedures

The population consisted of 106 Malaysian agricultural extension professionals attending various universities in the United States in 1985. These individuals were formerly employed by as many as eleven different agencies in the Agricultural Extension System in Malaysia.

The data collection instrument was a fixed response, self-administered mailed-questionnaire consisting of 53 teaching competency statements divided into five competency categories. The instrument was developed from previous studies (Gonzalez, 1982; Hawk, 1977; Teh, 1980; Witmer, 1979). A five-point scale rated the importance of each statement (1=no importance; 2 = low: 3 = moderate; 4= high; 5 = very high importance). The instrument was submitted to a panel of experts in the Department of Agricultural Education at Iowa State University to ensure content validity and clarity. Reliability coefficients ranged from 0.80 to 0.94 for the five competency categories.

There was a 72% response rate for the mailed questionnaire. Follow-up letters were used to increase the response rate to this level. Non-respondents were contacted by phone. These responses were compared with the initial data and no differences were observed. Data were analyzed using frequencies, percentages, means, and standard deviations.

Results

Importance of Teaching Competencies All 53 competency statements were perceived as being at least moderately important to the respondents in transferring new agricultural technologies to Malaysian farmers. Sixteen competency statements were considered to be highly important. The rating of 4.20 or higher was selected as a significant level of importance to merit attention. This level of importance was arbitrarily set prior to the collection of the data in order to establish a point at which attention would be given to the items relative to future training. Table 1 indicates the sixteen highest rated competencies.

Table 1
Competencies Related to Teaching Considered to be Highly Important as Perceived by Malaysian Extension Workers

Item	Mean	SD
Conducting method demonstrations	4.39	0.63
Devloping personal relationships with leaders and clientele	4.38	0.73
Interpreting impact of change	4.37	0.73
Collecting program information	4.34	0.72
Conducting evaluation	4.32	0.70
Writing program objectives	4.32	0.74
Writing final reports	4.31	0.76
Establishing priorities	4.30	0.71
Conducting needs assessment	4.29	0.81
Facilitating change	4.29	1.01
Managing human resources	4.26	0.94
Conducting extension meetings	4.24	0.67
Identifying factors influencing people to become involved in education	4.21	0.70
Understanding rural culture	4.21	0.72
Writing teaching objectives	4.21	0.72
Utilizing specialists, volunteers, and community leaders	4.21	0.82

Note: 1 = No Importance; 5 = Very High Importance.

Conducting method demonstrations (x = 4.39) was considered to be the competency of the greatest importance. Developing personal relationships (x = 4.38) and interpreting impact of change (x = 4.37) also rated high. Respondents indicated that process oriented competencies were important.

Table 2 indicates that of the five general teaching competency categories, the area of using teaching strategies and tools/aids received the lowest rating. This information indicates that although many competencies related to teaching were important to the respondents, the use of a variety of techniques/tools seemed less important.

Table 2
Composite Mean Ratings of the Five Teaching Competency Categories perceived to be needed by Extension Workers in Transferring New Agricultural Technologies to Farmers in Malaysia

Item	Comp. Mean Score
Conducting Program and Process Evaluation	4.23
Understanding Human Behavior	4.20
Long Range Program Plans	4.20
Plan and Conduct the Teaching-Learning Process	4.05
Using Teaching Strategies and Tools/Aids	3.62

Note: 1 = No Importance: 5 = Very High Importance.

The respondents rated several traditional teaching methods such as lecture, extension meetings, group discussions, and panel discussions at a slightly higher level on the scale. Teaching strategies such as method demonstrations, field visits, tours, and exhibitions received high ratings. The respondents rated the several teaching tools such as microcomputers, flip charts, hook and loop board, video and closed circuit television, and radio slightly lower on the scale. The possible explanation is that these teaching tools were not available or rarely had been used by the respondents.

Respondents thought that traditional teaching methods were more effective because of the culture and the fact that most farmers were illiterate. Respondents did not feel that new technology with regard to teaching methods would necessarily provide for maximum understanding. Availability and access to training in the use of new teaching technologies may be the major reasons for the slowness in adopting different strategies.

Time **of Training** To address objective 2, respondents were asked to indicate the time at which each competency should be learned. There were three choices: 1 = On-the-Job; 2 = Diploma Program; 3 = Inservice Training. Seven of the 53 competencies were verified by the respondents to be best learned on-the-job. These seven corpetencies were:

(a) Identifying factors influencing people to become involved in education.
(b) Applying factors affecting behavior of people.
(c) Understanding rural culture.
(d) Developing personal relationships with leaders and clientele.
(e) Collecting of program information.
(f) Conducting field visits and tours.
(g) Conducting Extension meetings.

Nine of the competencies were rated to be best learned as a part of a diploma or baccalaureate degree program. These nine competencies were:
(a) Managing of human resources.
(b) Employing principles of learning and teaching.
(c) Applying principles of adult education.
(d) Writing content outline.
(e) Writing main content of lesson.
(f) Presenting information with an overhead projector.
(g) Presenting information with a computer.
(h) Developing evaluation in the program planning stage.
(i) Analyzing information and write the final report.

There was no majority consensus as to when the other competencies should be taught. The data indicated that respondents put a higher priority on diploma programs and experiential learning than on planned inservice education related to the process of education. This conclusion was based on responses regarding questions related to inservice education.

A large percentage of the Extension workers (35X) had never attended an inservice training program. Those participating in inservice training reported having attended only one or two meetings per year. These meetings focused entirely on new technology. Rarely, if ever, did these meetings focus on methodology or delivery systems.

Conclusions and Recommendations

All 53 competencies related to teaching are important for Malaysian Extension professionals in teaching adult farmers. On-the-job training and diploma or baccalaureate programs are appropriate to learn competencies related to teaching. Inservice education for purposes related to educational process is not a priority. Traditional educational methods, i.e., demonstrations, tours. are highly important for Malaysian Extension professionals in teaching adult farmers.

Extension professionals (potential and current) should be provided the opportunity to enhance their teaching skills through planned programs and experiences. A needs assessment should be conducted in the total Malaysian Extension System to determine the extent to which training in educational techniques and process is necessary.

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