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A needs assessment of the inservice training program for agricultural extension advisors in Taiwan

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A needs assessment of the inservice training program for
agricultural extension advisors in Taiwan

by

Lee Chu

A Thesis Submitted to the
Graduate Faculty in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE

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Signatures have been redacted for privacy

Iowa State University
Ames, Iowa

1985

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CHAPTER I. INTRODUCTION

Agriculture has been a crucial sector in Taiwan's economic development. After World War II, agriculture served not only as a source of food but also as a source of investment, capital and raw materials required by the industrial sector (Lee, 1978). In the last two decades, rapid industrial growth has brought about drastic changes in Taiwan's economic structure; the contribution of agricultural production to the net domestic product fell from 35.9% to 8.7% between 1952 to 1980 (PDAF, 1982). However, agriculture still plays an important role in both the social and economical aspects of the country (Cheng, 1982).

From government publications, it is indicated that 26.98% (4,979,000) of the total population is agriculture-based, and 900 thousand hectares (25%) of the country is cultivated (PDAF, 1983). The annual growth rate of agricultural production fell from 5.7% in 1965 to 2.7% in 1980, and the income of farm family was three-fourths of the non-farm family's income in 1983 (PDAF, 1984). The preceding information suggests that several problems exist in the development of agriculture and rural society. In fact, there are several existing research papers which address the low educational and economic level of rural people as well as the social problems in rural society. There are also many government projects and policies concerned with agricultural/rural development and improving the quality of rural life (CAPD, 1980).

One of the primary forces for agricultural/rural development in Taiwan is agricultural extension conducted through the Farmers' Association (F.A.). The F.A. is the largest organization of farmers in Taiwan, and is organized on three levels: provincial, county, and local (township). Extension advisors working at the local level contact rural people directly to provide assistance with farming, financial, and marketing problems and to help develop the knowledge and abilities of rural people in both agricultural and non-agricultural subjects. Following the philosophy of cooperation and education, the local extension advisors play an essential and multifaceted role (CAPD, 1983). Therefore, it has been suggested that the training of local extension advisors has an effect on the successfulness of extension programs and is a key factor in the development of agriculture and rural society (Huang, 1977).

Like some other developing countries, the educational level of local extension advisors in Taiwan is not high. Of the total number of local extension advisors, approximately 85% graduated from vocational school (CAPD, 1983). Many agricultural extension experts consider the training of extension advisors insufficient to assist rural people effectively (Shiao, 1984). Wan (1979) reported that 85.5% of township extension advisors felt that they were not adequately trained, and 70.77% thought that this fact may greatly hinder their ability to conduct extension tasks. Huang (1977) found that the major source of extension knowledge and techniques for extension advisors was work

experience. She suggested that inservice training programs be required in order to improve the effectiveness of extension advisors. Moreover, Wu (1980) found that rural people had a lower estimation about how much they learned from extension education when compared to what extension advisors thought they had taught.

A substantial need for inservice training for local extension advisors can be inferred from the above discussion. Specifically, a well-designed and effective training program is needed. There are presently several inservice training programs conducted annually or periodically in Taiwan. They may address either agricultural techniques or extension techniques. The focus of this study is extension techniques. This kind of training program provides basic and useful information or techniques to assist extension advisors in being more effective in conducting their tasks (CAPD, 1983). The content often includes teaching methods, planning and evaluation, extension organization, leadership development, and management skill. These inservice training programs are administered through provincial F.A., supported by government, and obtain assistances from some agricultural colleges for planning and teaching the programs. These programs are not required for extension staff; however, attendance is strongly encouraged. Liu (1967) concluded from his investigation that these inservice training programs are very important for improving the extension advisors' ability to face the challenge of the changing nature of extension work. In addition, he pointed out that the high turnover

rate of local extension advisors made inservice training programs crucial.

One should not be satisfied simply because some inservice training programs exist. The quality and effectiveness of existing inservice training programs need to be examined. There are two key issues which need to be considered: (1) Are those training programs really helpful?, and (2) Do those programs meet the training needs of extension advisors? Singh and Gill (1982) noted that if the training is to be effective, the training needs should be established prior to the program. In other words, training is not a "Panacea", it should be prescribed in the most appropriate way for dealing with identified needs (Chmura, 1981). However, in Taiwan, very little literature or research was found concerning needs assessments for inservice training programs for agricultural extension advisors. Price stated:

"lacking comparative information, educators and trainers often will impose their own values and perceptions of data. ... It is crucial to make decisions based on the data produced by the needs assessment in order to effectively meet the needs of learners in an educational or training system" (Price, 1983, p. 25).

Bielema and Sofranko (1983) also indicated that educators should not transfer their own expressed needs and interests into a program. In brief, the needs assessment provides an objective description regarding goal definition and program content for better decision-making (Price, 1983).

Moreover, Hyatt (1966) stressed that different competences are needed for different positions or situations. Inservice training must

be differentially arranged according to the varying competences needed by clientele to maximize program effectiveness (Ingersoll, 1976). It is necessary not only to determine the training needs but also to find out different training needs related to the different positions or backgrounds of extension advisors.

With regard to the importance of inservice training for improving extension work, the main purpose of this study is to assess the local agricultural extension advisors' inservice training needs regarding extension techniques. The results may provide an overview pertaining to what should be taught in the training programs and give baseline data for program development and evaluation. Specifically, the objectives of this study were:

1. To obtain demographic information of the extension advisors involved in the investigation.
2. To identify and rate the importance of inservice training needs as perceived by agricultural extension advisors in Taiwan.
3. To ascertain extension advisors' attitudes towards the effectiveness of the existing extension training program in fulfilling identified needs.
4. To detect the relationships between training need ratings and selected demographic variables.
5. To determine if any significant differences exist in the perceived training needs among extension advisors with different backgrounds.

Delimitation

This study is designed to investigate the inservice training needs of the extension advisors at local level in Taiwan. It is focused on training needs in the area of extension techniques.

Definition of Terms

Local agricultural extension advisors: Extension advisors, including directors of extension affairs, farm advisors, home economics advisors, and 4-H advisors, who are employed in a township F.A.

Agricultural techniques training programs: Training programs addressing subject-matter in the area of agriculture.

Extension techniques training programs: Training programs concerned with extension organization and methods, excluding agricultural subject matter (CAPD, 1983).

Urbanized area: Geographic area with the percentage of agriculture population to the total population less than 46.9.¹

Medial area: Geographic area with the percentage of agriculture population to the total population between 46.9 to 66.9.

Rural area: Geographic area with the percentage of agriculture population to the total population higher than 66.9.

¹ 46.9% and 66.9% were found to be two cutting points giving an equal size of agricultural population in the three groups according to the census in Taiwan, 1979.

CHAPTER II. REVIEW OF LITERATURE

This chapter includes a review of literature and research related to this study. The review is presented in the following order: (1) conducting effective inservice training programs, (2) needs assessment for inservice training programs, and (3) competences needed by extension personnel.

Conducting Effective Inservice Training Programs

Inservice education is widely employed for introducing new ideas, methods, and materials to people in the continuing effort to improve the quality of a profession (Hentschel, 1977). Griffin (1978) noted that "One of the requirements of a profession is that its members somehow continue to learn, to grow, and to renew themselves, so that their interactions with ideas and with clients are reflective of the best knowledge and skill available to them." There is little doubt that inservice training is imperative to improve the quality of extension staff. From a report of the Joint USDA-NASULGC Extension Study Committee, 1968, the importance of inservice training for successfully conducting extension work was described clearly. It stated that:

"Extension has given a great deal of time to studying the needs of its clientele. As an organization, however, it has not communicated its imperative requirements for self improvement. ... Cooperative extension function is such that only by a continual process of staff training and development can it hope to field a staff which is competent and confident" (A People and a spirit, 1968, p. 42).

Huang (1977) conducted a task analysis of local extension work and investigated the knowledge sources for local extension advisors in the field of extension techniques. It was a comprehensive investigation of all local farm and 4-H advisors in Taiwan. Through a questionnaire, she found that the primary source of extension knowledge for the advisors was work experience. It was reported that, except for work experience, there was little effect from any other source of knowledge on local extension advisors' proficiency. In other words, there were very limited resources which may help to improve their proficiency. She concluded that inservice training for extension advisors in Taiwan was very insufficient, and stressed that a competence-based staff development program was needed to improve the efficiency of extension advisors.

In 1979, Wan completed a study concerning the changing function of agricultural extension in Taiwan. The sample consisted of both farmers and extension advisors in 30 townships. A structured interview was conducted with the farmers and a questionnaire was sent to extension advisors to determine their perceptions about the functions of extension. She concluded that the function of extension was no longer solely one of conducting policy, but had changed due to the tremendous social change over the past two decades. The needs of clientele were quite different than before, and had become much more complex. Extension advisors should be cognizant of the needs of rural people so that they can devise strategies to address those needs. To meet this

challenge, she suggested that growth in a profession is the key to success. Hentschel (1977) indicated that inservice training could be seen as a strategy for bringing about change. It is necessary for extension advisors to accept proper training in order to meet the rapidly changing functions of extension. Wan (1979) also reported from her survey results that of the extension advisors involved in her study, 85.5% felt themselves not well trained, and 70.8% of these respondents thought this affected their ability to work efficiently. On the other hand, of the farmers interviewed, only 29.2% felt that the advisors were not well trained, and only about one-third of that group thought extension work was affected by the advisors' lack of training. From this report, it can be implied that the extension advisors perceived that they needed to improve their profession.

A comprehensive study dealing with the issues of inservice training of extension advisors in Taiwan was conducted by Liu in 1967. With regard to the high turnover and the insufficient training of extension advisors, he emphasized that effective inservice training programs were needed in order to make up for insufficiencies in their competences. He stated that the effectiveness of inservice programs was the primary issue to consider. In addition, he examined the training content of inservice programs, and found that programs on extension techniques were not usually offered.

Considering critical issues for inservice education, Gallegos (1979) stressed that training needs should be clarified and verified.

In an article published in NASSP Bulletin, titled "Inservice Programs - What Are The Essentials For Making Them Effective?", Byrne (1983) also stated :

"What has been lacking is the consistent, uniform approach to staff inservice that accounts for faculty development in terms of individual and school system needs and goal" (Byrne, 1983, p. 1).

They both indicated that inservice programs could be based upon the philosophy of "growth" or could only be viewed as a "required improvement"; however, the clientele's training needs would not be less important in either case.

There is a variety of literature addressing inservice education models, and needs assessment can be found as an integral step in many of these models. Magliocca and Magliocca (1978) described a competence-based inservice training model with "specify training needs" as its first stage. In an inservice model for school personnel designed and used in 181 school systems in Kentucky (National Inservice Network, 1981), the seven time-specific phases included were: (1) preliminary planning; (2) needs assessment; (3) goal and objective setting; (4) task, activity, and resource determination; (5) implementation; (6) outcome evaluation; and (7) recycling.

A needs assessment plan was detailed in a published monograph titled "Planning for Inservice Education" (Hite and McIntyre, 1978). The "what", "how", and "who" of an assessment plan were described step by step, and it was stated that:

"If the plan for the inservice program clearly stated the "what", the "who", and the "how" for the needs assessment,

then the program is almost assured a viable structure and focus for later implementation" (Hite and McIntyre, 1978, p. 23).

Needs Assessment for Inservice Training Programs

It is crucial to make decisions for educational program development based on the data produced by the needs assessment in order to effectively meet the needs of learners or training systems (Price, 1983). In general, needs assessment is the process by which people identify needs and decide on priorities among them (Kosecoff and Fink, 1982)*. An educational need can be described as a discrepancy or gap between a person's present level and the preferred or required level or capabilities for effective performance defined by the person, the organization, or society (Caffarella, 1982). In an article, "Needs Assessment Models: A Comparison", published in Educational Technology at December 1979, Trimby discussed four needs assessment models and indicated needs assessment is the first step in many of the systems approaches to educational development. In regard to the effect of needs assessment, he stated that:

"In the educational setting, this process (needs assessment) yields information which can be used in educational planning, in problem-solving, for making educational decisions, for accountability, and for supporting applications for funding. In educational systems development, the information and data obtained from a needs assessment are used to design, implement, and evaluate instructional products or programs" (Trimby, 1979, p. 24).

Prior to the 1960s, curricular goals and objectives were often established on the basis of educational theory and experiences, and

decided by teachers and administrators. During the 1960s, a number of efforts were made to specifically determine students' needs before establishing program objectives and developing program components (Davis, 1980). Moreover, Borich (1980) noted needs assessment can be used for self, summative, and formative evaluation in follow-up studies.

In an article discussing the evaluation of inservice training program for agricultural extension agents, Smith and Woeste (1983) pointed out that:

"Too little time is usually spent on evaluation of inservice educational programs before their implementation. Perfectly good programs may have little or no positive impact because they were not on target" (Smith and Woeste, 1983, p. 22).

Very little literature or research could be found relating to the needs assessment of inservice training program for agricultural extension advisors in Taiwan. Since a considerable amount of money and effort has been invested in inservice training, much more attention needs to be paid in studying inservice training needs of Taiwan's extension advisors. Obviously, an effective needs assessment approach needs to be considered.

There is a large amount of literature which addresses the design of needs assessment. Kaufman and English (1979) described several general steps involved in conducting a needs assessment. In summary, they were:

1. Identify the partner groups of educators, learners, and community (society).
2. Have each group generate goals and rank them.
3. Have each group determine the present status of learners.

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4. Have each group identify and analyze the discrepancies between the goals and present status.
5. Bring the groups together and reconcile differences.
6. Place needs in priority order.

Kosecoff and Fink (1982) introduced a needs assessment strategy in their book titled "Evaluation Basics - a practitioner's manual".

Included are five steps:

1. Identify potential objectives.
2. Decide which objectives are most important.
3. Assess the nature and type of currently available services.
4. Collect information.
5. Select final objectives.

Concerning the identification of training needs, Schiffer (1978) mentioned the felt needs of the trainee are as important as organizational goals. Kaufman and English (1979) divided needs assessment into two types: internal and external. From an internal view, the needs felt by learners, educators, and community are considered. The external needs refer to the societal goals and objectives. He stated that:

"Felt needs are only the entry point for realistic goal setting and needs identification. A need assessment process required both perceived needs and needs substantiated and justified by external reality" (Kaufman and English, 1979, p. 227).

Lee (1982) recommended that the viewpoints from the sponsoring organizations, experts, and professionals should be accounted for when

conducting needs assessment. In addition, he stated that an analysis of competence may also contribute to the effort of identifying training needs.

As to the techniques for conducting a needs assessment, Caffarella (1982) suggested the following techniques:

1. Survey.
2. Key informant interviews.
3. Consultation.
4. Observation.
5. Group meeting.
6. Review of written materials.
7. Informal.

In 1976, Ingersoll completed a teacher training needs assessment survey in four school systems. A series of items describing teaching skills was developed from an examination of categories of teacher competences and a survey of previous responses. Five judges sorted the items into seven clusters that had apparent a priori commonality. A questionnaire was used to explore how the teachers saw each training area as a personal need and as a need of teachers in general. He noted that "The needs identified for inservice training may differ as a function of who is asked to respond" (Ingersoll, 1976, p. 173).

Prioritizing is an integral element in needs assessment. An educational program can not satisfy all educational needs. It is important to decide which needs are to receive priority and the amount

of resources to be used (Benseman, 1980). In a book titled "Planning Better Programs", Boyle (1981) wrote that:

"Priority setting is not an individual nor even a group decision-making process, but rather a multigroup decision-making process. ... The situation in which priorities are made is very complex, involving many sources of influence, information, criteria alternatives, resources, and cooperation" (Boyle, 1981, p. 127).

He suggested six broad categories that provide the basis for specific criteria and evidence for the decision making process of prioritizing.

Included are:

1. Society - community.
2. Clientele.
3. Politics.
4. Organization.
5. Resources.
6. Personnel.

With regard to the role of needs assessment, Chmura (1981) stated that:

"For training needs assessment to work effectively, it must be viewed as part of a continuous process of training and development in an organization" (Chmura, 1981, p. 26).

Benseman (1980) also discussed the changing nature of needs. He viewed the assessment of needs be a continuous process for taking into account the dynamic, shifting nature of needs that "One-shot efforts to assess needs run the risk of overlooking, to some degree at least, people's changing environment and their on-going personal development" (Benseman, 1980, p. 28).

Competences Needed by Extension Personnel

To successfully conduct an assessment of inservice training needs, a competence model is important as a decision-making tool which describes the key capability required to perform a job (McLagan, 1980). McLagan considered a competence model to be more reliable than a job description, more valued than a detailed skill list, and more consistently on target than felt needs.

In discussing extension staff competence, Hyatt (1966) mentioned three broad dimensions:

1. Specializing in a specific area of technical agricultural subject matter.
2. Being trained in adult education.
3. Being able to fulfill an administrative role.

He also introduced eleven generalized areas of competence relevant to extension work. In brief, they included understanding and ability related to:

1. Objectives and organization of the entire extension system.
2. Appropriate technical subject matter.
3. The principles and processes of programing.
4. The principles of learning and teaching.
5. Communication process.
6. The structure and dynamics of human society.
7. Human development process and the skill in human relations.
8. The principles of management.

9. The approach of being informed about current issues and problems confronting the clientele.
10. The principles of administration and supervision.
11. The principles and techniques of evaluation.

Brooks (1976) surveyed the training needs of extension specialists from the point of view of their administrators and identified needs related to the following areas:

1. Extension philosophy, organization, and internal procedures.
2. Methods and procedures essential to planning extension programs.
3. Methods and procedures essential to implementing extension programs.
4. Methods and procedures essential to evaluating and reporting extension programs.
5. Relationships with the total university and other agencies.
6. Technical subject matter involved in position.

In a study conducted by American Institutes for Research (AIR, 1979) to develop standardized tests for the appraisal of extension personnel, fourteen dimensions of extension worker performance outcomes were classified by extension supervisors and agents. Included were:

1. Assessing community needs.
2. Planning.
3. Program promotion and public relations.
4. Involving the community in program implementation.
5. Conducting educational programs.

6. Advising clientele.
7. Evaluating programs.
8. Reporting.
9. Continuing professional development.
10. Office management and administrative tasks.
11. Supervising.
12. Working relations with staff.
13. General interpersonal behavior and characteristics.
14. Personal behaviors and characteristics as identified in AIR study.

Hyatt (1966) emphasized that competences needed by extension workers may be different according to their position and situation. Also, Blasi (1981) studied the competences and needs of rural educators. He indicated that population sparsity and distance factors more or less affect most rural programs causing them to be cross-categorical and multi-age programs. Thus, rural specialists need competences pertaining to the different needs of local situations.

In 1980, a study of the function of agricultural extension work in Taiwan was conducted by Wu. The sample comprised extension advisors and rural people in three groups of areas categorized by their level of urbanization. Wu (1980) emphasized that due to the rapidness of social change in Taiwan, extension advisors not only need more competences to successfully conduct their job, but they also must possess different competences in accordance with the local situation. Extension advisors

need to reinforce their competences in certain areas to better perform their mission.

Huang (1977) analyzed the proficiency of extension advisors in Taiwan concerning extension techniques. It was found that extension advisors were best in communicating with rural people, and that evaluation techniques was the area of competence needing the most improvement.

Summary

From the review of literature, the essentiality of inservice training programs for upgrading the proficiency of extension advisors is revealed. The literature also suggests that in order to conduct training programs effectively, needs assessment is a critical issue to be considered. Some strategies and steps of needs assessment were examined and discussed including the sources for defining training needs, needs assessment techniques, and prioritizing. In addition, competences needed by extension advisors to successfully conduct their job were reviewed to provide a basis for the identification of training needs.

CHAPTER III. METHODS AND PROCEDURES

The main purpose of this study was to assess the inservice training needs focusing on extension techniques of local agricultural extension advisors in Taiwan. To accomplish this purpose, several research procedures were employed. These procedures are reported in the following sections: (1) Population Identification and Sample Selection, (2) Instrument Development, (3) Data Collection, and (4) Data Analysis.

Population Identification and Sample Selection

The population of this investigation consisted of all local agricultural extension advisors in Taiwan Province. Through the 1983 roster of agricultural extension advisors in Taiwan, a total of 1549 local advisors were identified including the directors of extension affairs, farm advisors, home economics advisors, and 4-H advisors; with an approximate ratio of 1:2:1:1.

The sample was selected using a proportional stratified sampling method. According to Van Dalen (1979), the proportional stratified sampling method may improve representativeness and reduce cost. The population was stratified into three groups in accordance with the level of urbanization of the areas they served. These groups were: urbanized areas, medial areas, and rural areas. A total of 300 extension advisors were selected randomly from each group in proportion to the actual size of the group in the population. Table 1 indicates the number of subjects in each group of both the population and sample. Finally, a

master list was compiled containing a four-digit code number, name, and address for each local agricultural extension advisor selected for study.

TABLE 1. Number of subjects in population and sample

Group	Population		Sample	
	n	(%)	n	(%)
Urbanized areas	461	(29.8)	90	(29.8)
Median areas	566	(36.5)	109	(36.5)
Rural areas	522	(33.7)	101	(33.7)
Total	1549	(100)	300	(100)

Instrument Development

In this investigation, the primary instrument for the collection of data was a questionnaire. Mason and Bramble (1978) indicated that by using questionnaire, a larger sample can be reached economically, thus increasing the generalizability of the obtained data. In addition, greater anonymity can be provided to the respondents, which may result in more open and honest responses to the questions. However, they pointed out that the questionnaire must be adaptable and understandable to the respondents for a more effective survey.

The first step in development of the instrument was a comprehensive review of literature on competences needed by local extension advisors

to perform their job successfully. A tentative list of competences was developed and grouped under the following headings:

1. Introduction of agricultural extension.
2. Agricultural policy in Taiwan.
3. Planning and evaluation.
4. Extension organization.
5. Leadership.
6. Teaching techniques.
7. Producing educational media.
8. Administration.

In June, 1984, six persons were interviewed by the researcher in Taiwan concerning the expected extension function, the role and responsibilities of the local extension advisors, and the competences needed by advisors. The people interviewed included: (1) government administrators dealing with agricultural extension affairs, (2) experts in the related fields, and (3) supervisor in provincial level F.A. (Appendix B).

The questionnaire developed for this study consists of two parts. Part one consists of questions designed to obtain demographic information from the respondents. The list of competences was revised after the interviews and became part two of the questionnaire. According to Kosecoff and Fink (1982), while conducting a needs assessment, it is essential to know not only how important each item is as perceived by the respondents, but also how well the program is

currently meeting those training needs. Therefore, in part two, the respondents were asked to indicate the degree of both importance and satisfaction concerning each item using a five-point scale where 1 indicates the minimum degree and 5 indicates the maximum degree of importance or satisfaction.

A pilot survey was administered to 10 extension advisors in two randomly selected local F.A. The participants were asked to clarify the statements in the instrument and make comments to help improve any vague or unclear parts. After the pilot survey was completed, the questionnaire was revised taking into account the comments obtained from the participants. The revised questionnaire was then submitted to two faculty members in the Department of Agricultural Extension at National Taiwan University (NTU) for a final review. The validity and suitability were checked carefully by the faculty members. Finally, the revised instrument was printed in Chinese (Appendix C).

Data Collection

To aid in collection of data, the investigator asked the Department of Agricultural Extension at NTU to support and help with the survey. A cover letter (Appendix C) was developed to explain the importance and objectives of the research and assure the anonymity. This letter was approved by the Agricultural Extension Department of NTU.

On July 10, 1984, the cover letter and the coded questionnaire, with a postage-paid business reply mail panel on the back page, were

mailed to each of the 300 selected respondents. Ten days after the initial mailing, a follow-up post card (Appendix C) reminder was mailed to each of the nonrespondents. On July 30, twenty days after the initial mailing, telephone calls were made to nonrespondents in order to identify the people who were not available to participate the survey. Those who were available to respond to the survey were asked to fill out the questionnaire and return it in ten days. An additional questionnaire was mailed to respondents who needed it. On August 20, 1984, the collection of data was concluded. There were 211 questionnaires returned which constituted an overall response rate of 70.3%, and of which 195 (65.0%) were found usable after review by the researcher. Table 2 shows the number and percentage of responses from the three groups.

TABLE 2. Number and percentage of responses

Group	Potential	Received	Usable
	n	n (%)	n (%)
Urbanized areas	90	61 (67.8)	55 (61.1)
Median areas	109	72 (66.0)	64 (58.7)
Rural areas	101	78 (77.2)	76 (75.2)
Total	300	211 (70.3)	195 (65.0)

Data Analysis

A code form was developed to record the data. The coded data were keypunched into the NAS AS/6 (IBM 370/168 compatible) computer in Iowa State University and analyzed with the Statistical Package for Social Sciences (SPSSX) (Appendix D) by the researcher. Following are the statistical procedures employed to analyze and summarize the data:

1. Frequencies were computed to recheck the coded data and provide an overview of the data for a proper revision of the analysis design.
2. Cronbach's Alpha procedure was used to test reliability of the grouped items in each training needs area and the total scale to estimate the level of internal consistency.
3. Percentages, means, and standard deviations were computed for all items in the instrument.
4. Pearson product-moment correlation coefficients were computed to detect relationships between the importance and satisfaction of the training needs and selected demographic variables.
5. T-test and analysis of variance procedures were employed to determine if significant differences existed in the importance and satisfaction ratings of the training needs between respondents with different backgrounds. The Scheffé and Tukey test was used to locate the sources of differences when significance (.05 level) was found.

CHAPTER IV. FINDINGS

In this chapter, summaries and analyses of responses provided by agricultural extension advisors in Taiwan are presented under the following headings: (1) demographic information, (2) reliability tests for training need items, (3) rankings of training needs, and (4) analysis of training needs by selected demographic variables.

Demographic Information

Through a series of questions in part one of the questionnaire, information concerning personal data and the inservice training program was collected to provide an understanding of the background of respondents. In this study, the population was divided into three groups according to the level of urbanization of the area they served. Data in Table 3 show the geographic distribution of respondents in the three groups. It appeared that the distribution was quite similar with only a slightly higher proportion in southern Taiwan, which is the major agricultural area in the country.

In Table 4, the numbers of respondents within the four different positions of employment are presented. The distribution was quite similar to the 1:2:1:1 ratio of those four positions in population as stated in Chapter III. This findings implies that the sample is representative, and thus supports the generalization of other data to the population.

TABLE 3. Distribution of respondents by geographic areas

Group	Northern Taiwan	Central Taiwan	Southern Taiwan
Urban	24 ¹	13	18
Median	22	12	30
Rural	23	25	28
Total	69	50	76

¹Number of respondents.

TABLE 4. Distribution of respondents by position of employment

Group	Director	Farm	Home Economics	4-H
Urban	13 ¹	23	9	10
Median	12	29	14	9
Rural	13	33	14	16
Total	38	85	37	35

¹Number of respondents.

Of the 195 extension advisors in this investigation, only six advisors had not attained an educational level of vocational school or above. Shown in Figure 1 are the numbers of respondents who attained an educational level of vocational school or college and are grouped by the level of urbanization of the areas they served. It was observed that

the numbers of respondents were distributed quite similarly in each group with an approximate ratio of 5:2.

Figure 2 presents the age ranges of the respondents. It was observed that the ages of the extension advisors ranged from 21 to 64. Approximately one-half (47.7%) of the respondents were in the age range of 30 to 40 years.

Numbers of years employed in a local F.A. and years in the current employment position were also studied. The numbers of years respondents were employed in a local F.A. are presented in Figure 3. The numbers of employment years ranged from 1 to 35. It was revealed that about one-fourth (27.32%) of the respondents were employed less than 6 years, and more than one-half (53.61%) were employed for less than 10 years. Figure 4 summarizes the numbers of years respondents were in their current employment position. It was found that, of the 194 respondents, 102 (52.6%) were in the 1 to 5 year range and 92 (47.4%) were in the 6 to 31 year range. It was interesting to note that for years of employment, the 1 to 5 year range accounted for about one-fourth (27.3%) of the respondents, while for the years in current employment position, the 1 to 5 year range contained about one-half (52.6%) of the respondents.

Shown in Figure 5 are the numbers of times that respondents had attended agricultural extension inservice training programs. The 0 to 2 times range group contained 81 (43.2%) respondents, of whom 9 indicated that they had never participated in any training programs. More than one-fourth (28.11%) of the advisors had attended more than 5 times.

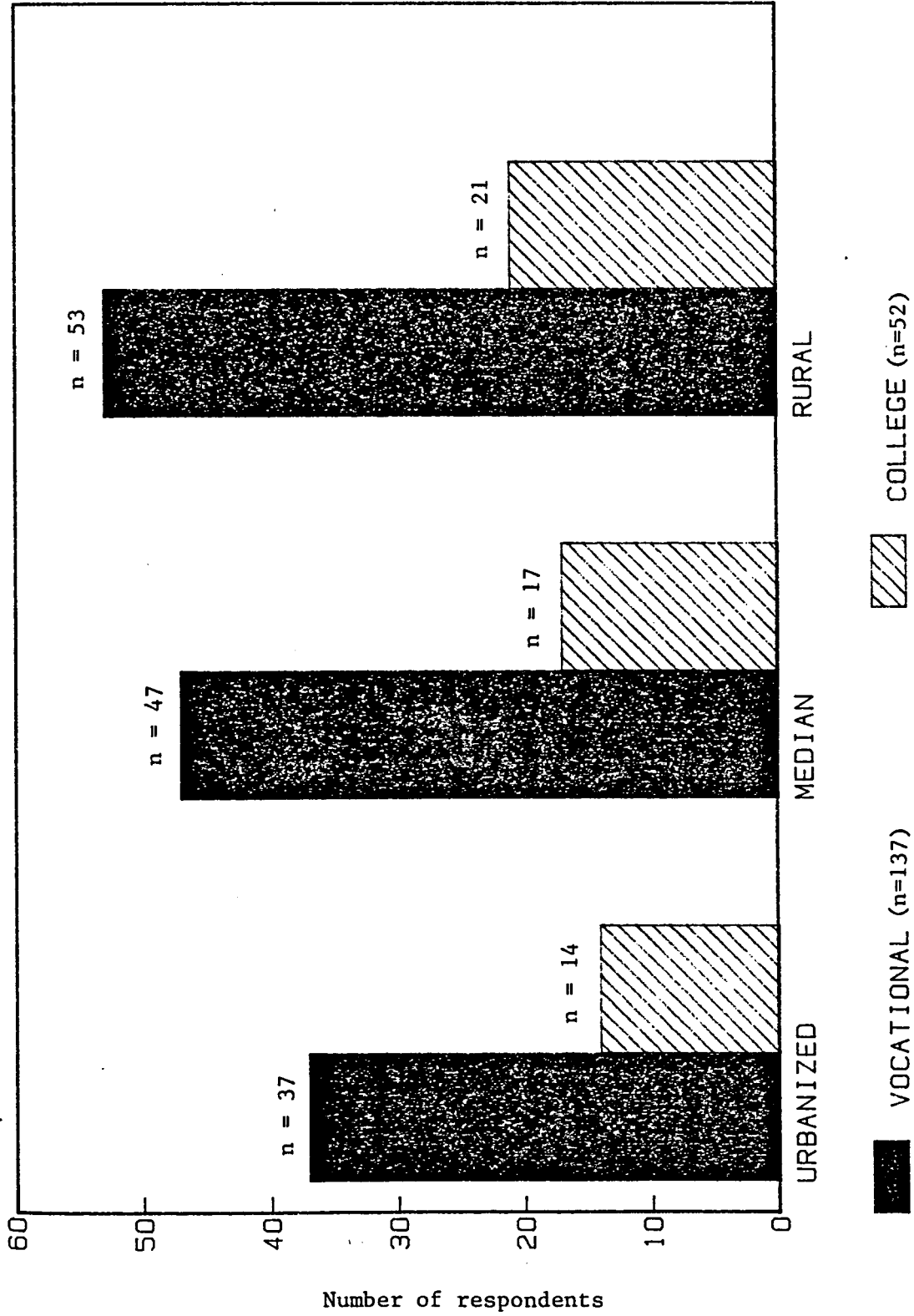


Figure 1. Educational level attained by respondents (N=189)

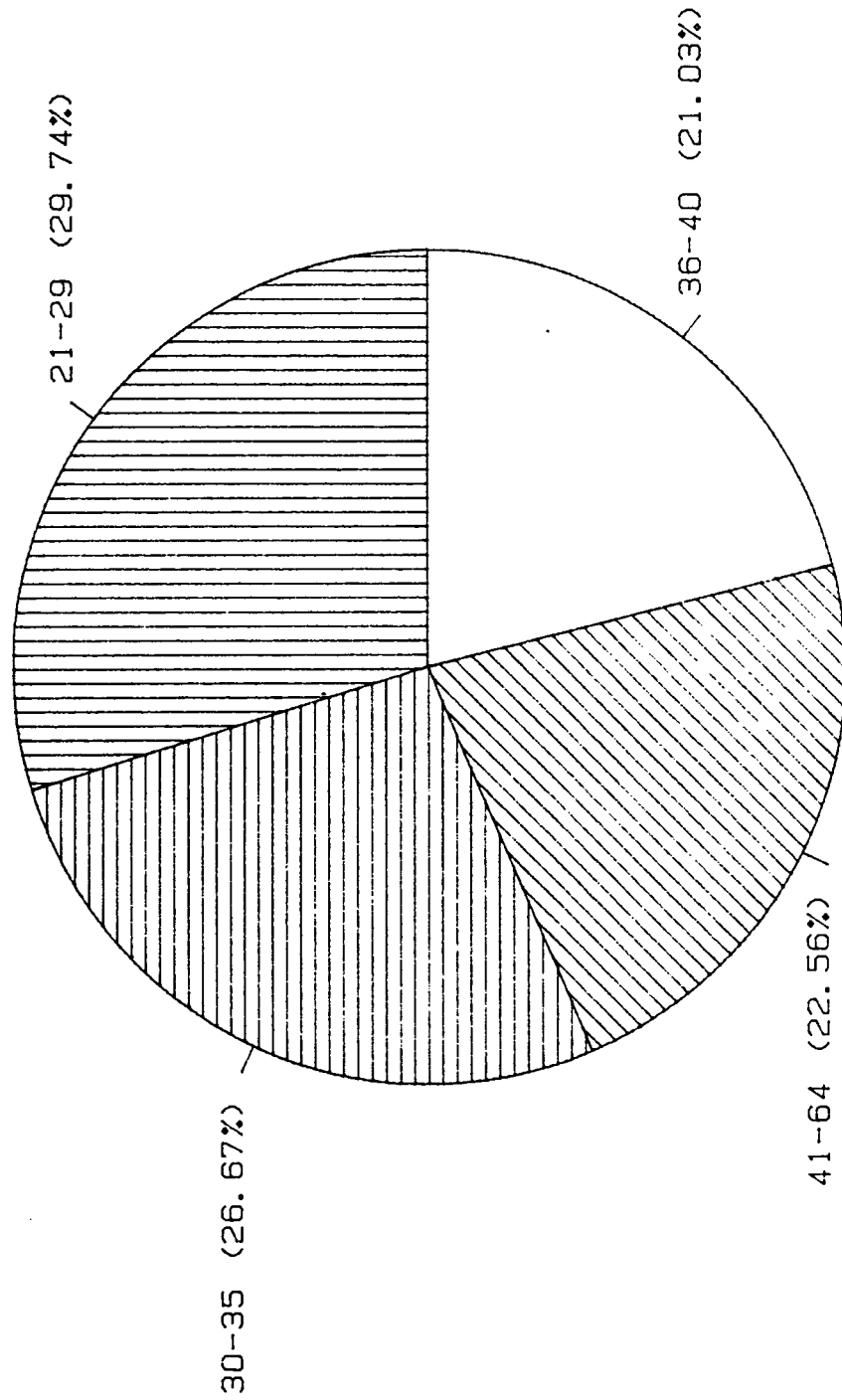


Figure 2. Ages of extension advisors (N=195)

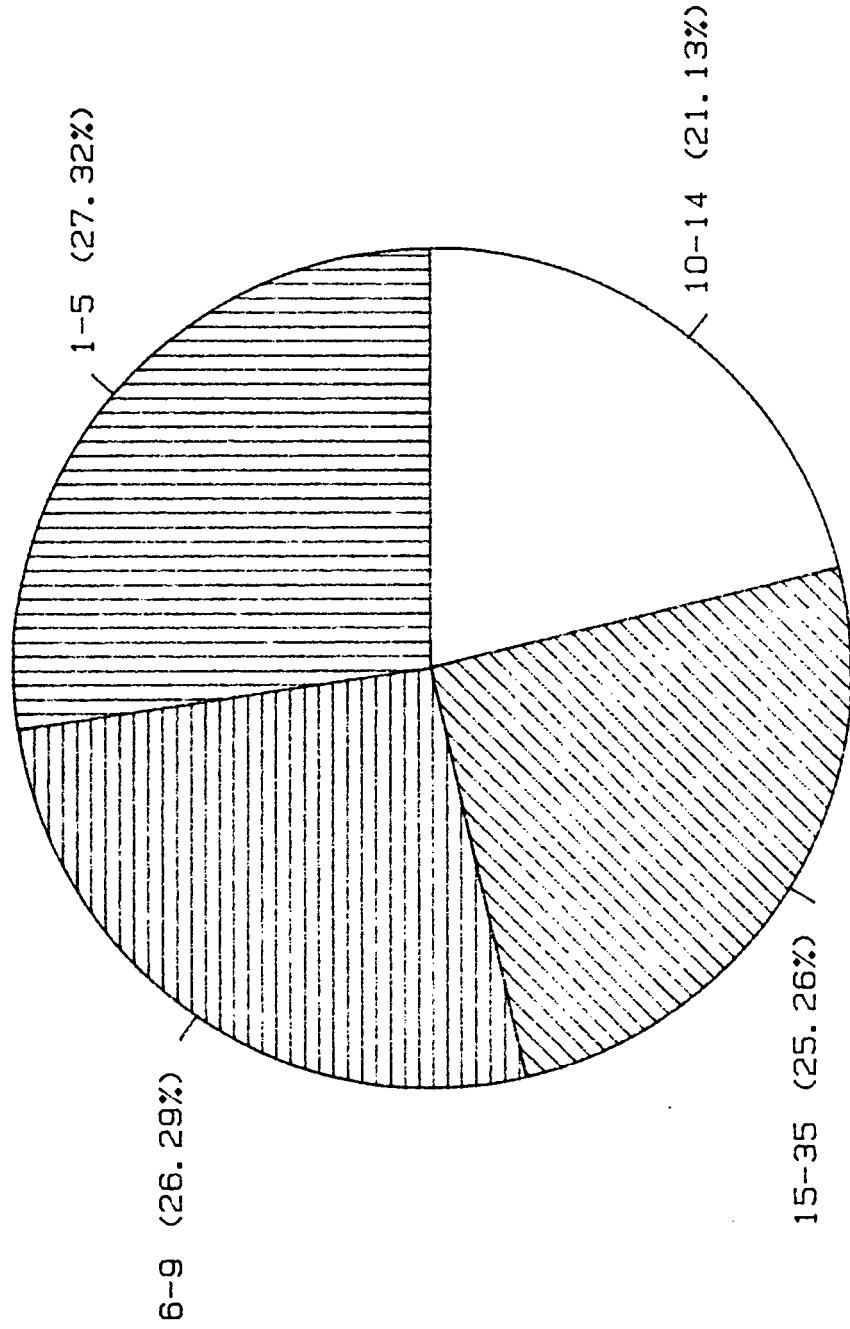


Figure 3. Numbers of years respondents were employed in a local F.A. (N=194)

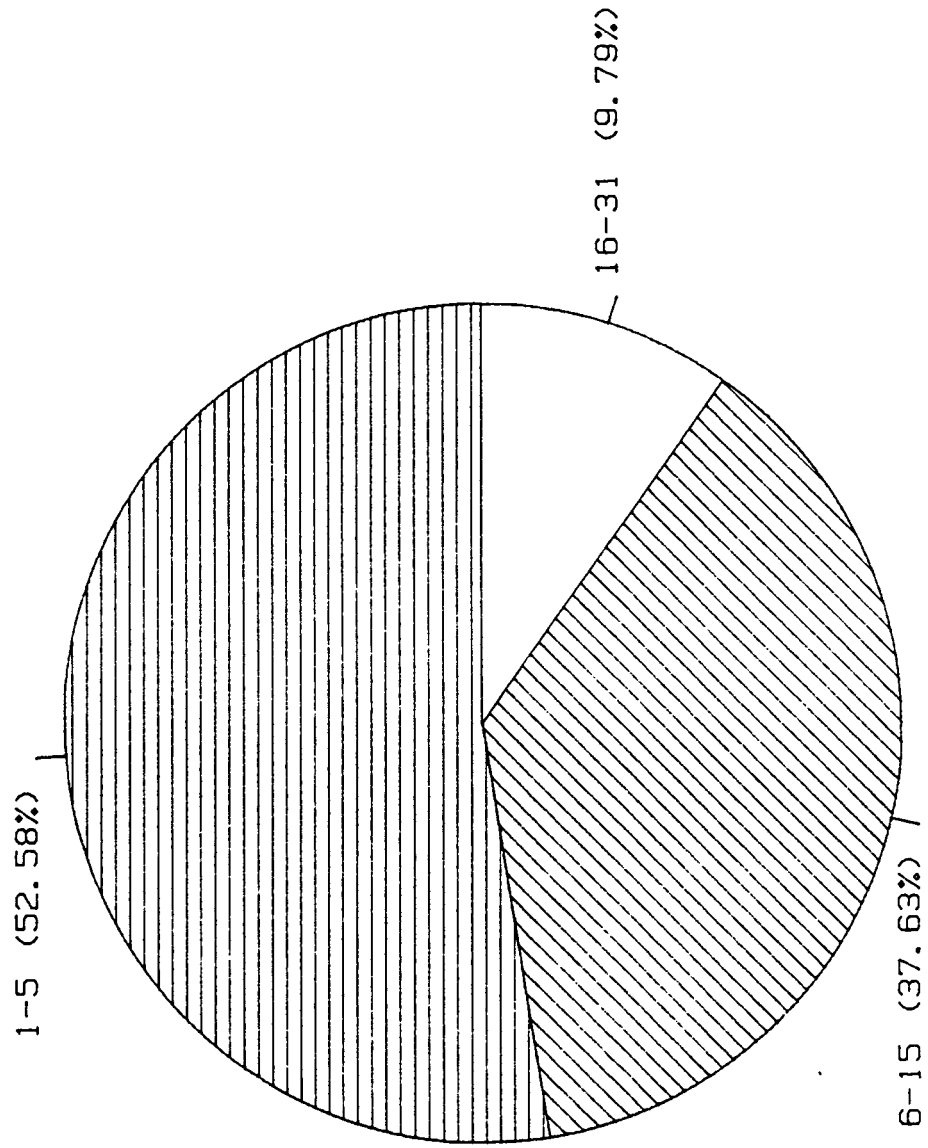


Figure 4. Numbers of years respondents were employed in their current position (N=194)

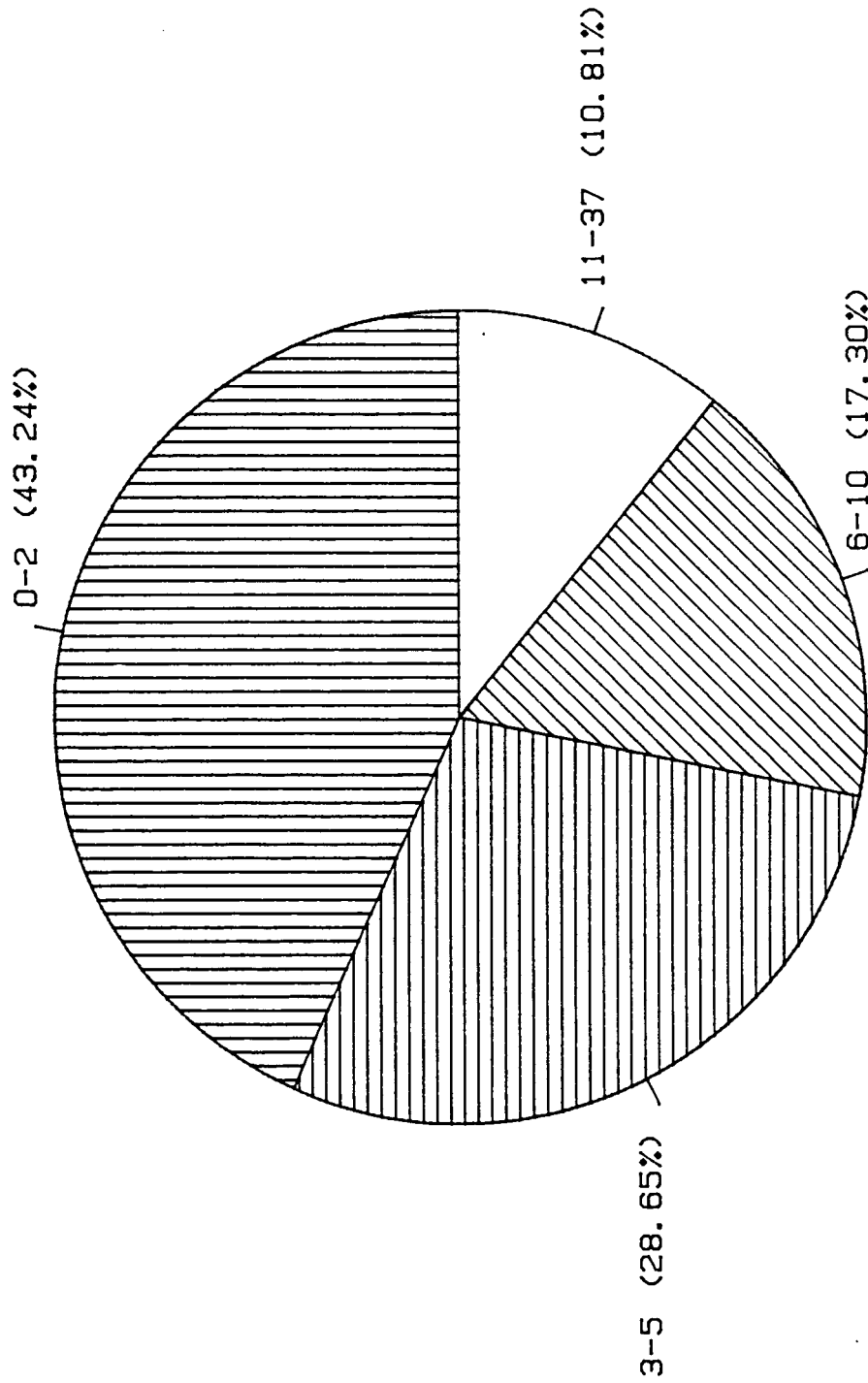


Figure 5. Numbers of times respondents had attended inservice training programs (N=185)

The respondents were asked to indicate their gender. It was found that 40 (20.5%) females participated in this study; 37 were home economics advisors and 3 were 4-H advisors, and 155 (79.5%) males were involved in this investigation, included were directors of advisors, farm advisors, and 4-H advisors.

The respondents were asked to indicate the type of inservice training program they felt was most important. A total of 33 (16.9%) indicated they preferred agricultural technique training programs, 11 (5.6%) considered extension technique programs as most important, and 150 (76.9%) thought both types of program were of equal importance.

The respondents who had experience with inservice training programs were asked to indicate their perceptions of the sufficiency of the program content. Their responses are reported in Table 5. It was found that, almost one-half (44.5%) indicated that the content of the inservice program was very or somewhat insufficient, and a slight majority (55.4%) indicated that it was somewhat or very sufficient.

TABLE 5. Rating of sufficiency of inservice training program content

Scale	Number	Percent
Very insufficient	10	5.4
Somewhat insufficient	72	39.1
Somewhat sufficient	83	45.1
Very sufficient	19	10.3

Reliability Tests for Training Need Items

To examine the level of internal consistency and stability of the training need items in the instrument, Cronbach's alpha procedure was used as a part of the data analysis in reliability tests on the grouped items in the eight training need areas and the total scale for both importance and satisfaction ratings. Results of the reliability tests are presented in Table 6. The Alpha coefficient for the entire instrument on importance scale was .928, and for the satisfaction scale it was .930. The 40 items were grouped into eight categories for further discussion and analysis. For training need areas, the coefficients ranged from .56 to .86 on importance ratings, and from .62 to .78 on satisfaction ratings. The coefficients were considered to be low for the importance ratings of the areas 'introduction of agricultural extension' and 'extension organization', and for the satisfaction ratings of the area 'introduction of agricultural extension'; therefore, the reader should interpret analyses in these areas with caution.

Rankings of Training Needs

The 195 selected agricultural extension advisors were asked to rate the importance of the 40 selected training need items. They were also asked to indicate their level of satisfaction with each item if they had experienced the item in previous inservice training programs. The training need items were rated on a five-point scale where 1 indicated

TABLE 6. Results of reliability tests for training need areas for importance and satisfaction ratings

Training need area	Number of items	Coefficients ¹ Importance/Satisfaction
Introduction to agricultural extension	5	.56/.62
Agricultural policy	7	.86/.77
Planning and evaluation	6	.81/.78
Extension organization	4	.62/.70
Leadership	2	.72/.74
Teaching techniques	5	.65/.71
Producing educational	4	.86/.67
Administration	7	.81/.76

¹Cronbach's Alpha coefficient.

minimum degree of importance or satisfaction and 5 indicated maximum degree of importance or satisfaction. For the purpose of discussion and analysis, the 40 items were grouped into eight broad areas: (1) introduction of agricultural extension, (2) agricultural policy, (3) planning and evaluation, (4) extension organization, (5) leadership, (6) teaching techniques, (7) producing educational media, and (8) administration. Summaries of both the importance and satisfaction ratings are presented in the following paragraphs.

Shown in Table 7 are the means, standard deviations, and rankings of importance ratings for the five training need items in the area of introduction of agricultural extension. The training need rated as most important in this area was 'communication', with a mean of 4.80. 'Adult education' was rated least important, with a mean of 4.15. The results of satisfaction ratings for this area are revealed in Table 8. Again, 'communication' was rated highest among the five items in satisfaction, with a mean of 3.76; while the training need rated least satisfactory was 'management', with a mean of 3.49.

TABLE 7. Importance ratings of inservice training needs in the area of introduction of agricultural extension

Rank	Training need item	N	Mean	S.D.
1	Communication	194	4.80	0.55
2	The role and responsibilities of agricultural extension advisors	194	4.73	0.59
3	Innovation and adoption	193	4.68	0.61
4	Management	186	4.20	0.85
5	Adult education	187	4.15	0.92

Data in Table 9 and Table 10 report the results of importance and satisfaction ratings for the area of agricultural policy. In this area, 'training of future farmers' was rated highest in both importance (4.75) and satisfaction (3.75). The training need rated as second highest in

TABLE 8. Satisfaction ratings of inservice training needs in the area of introduction of agricultural extension

Rank	Training need item	N	Mean	S.D.
1	Communication	165	3.76	0.74
2	Adult education	83	3.63	0.85
3	The role and responsibilities of agricultural extension advisors	135	3.62	0.78
4	Innovation and adoption	87	3.59	0.83
5	Management	73	3.49	0.75

importance was 'marketing', with a mean of 4.73. 'Policies for pricing agricultural products' ranked third in importance (4.70), and ranked last in satisfaction (3.12).

The area of planning and evaluation consisted of six items (Table 11 and Table 12). The agricultural extension advisors in this study rated 'needs assessment', with a mean of 4.68, as most important in this area. The second and third most important items were 'plan implementation' (4.68), and 'budgeting' (4.63). The training need ranked first in the satisfaction ratings was 'plan implementation' (3.70), and 'budgeting' was rated second (3.46). The ranks of items in this area were quite similar in both importance and satisfaction ratings. The last three items, in descending order, for both ratings were: 'principles of program planning', 'decision-making', and 'principles of program evaluation'.

TABLE 9. Importance ratings of inservice training needs in the area of agricultural policy

Rank	Training need item	N	Mean	S.D.
1	Training of future farmers	184	4.75	0.58
2	Marketing	186	4.73	0.57
3	Policies for pricing agricultural products	185	4.70	0.65
4	Agricultural finance	182	4.43	0.80
5	Utilization of agricultural resources	182	4.41	0.79
6	Joint farm programs	186	4.34	0.89
7	Societal development	186	4.16	0.75

TABLE 10. Satisfaction ratings of inservice training needs in the area of agricultural policy

Rank	Training need item	N	Mean	S.D.
1	Training of future farmers	67	3.75	0.86
2	Joint farm programs	123	3.48	0.86
3	Utilization of agricultural resources	64	3.47	0.85
4	Agricultural finance	61	3.44	0.67
5	Societal development	75	3.43	0.76
6	Marketing	72	3.19	1.00
7	Policies for pricing agricultural products	77	3.12	1.00

TABLE 11. Importance ratings of inservice training needs in the area of planning and evaluation

Rank	Training need item	N	Mean	S.D.
1	Needs assessment	190	4.68	0.60
2	Plan implementation	190	4.68	0.58
3	Budgeting	189	4.63	0.68
4	Principles of program planning	188	4.30	0.88
5	Decision-making	184	4.28	0.90
6	Principles of program evaluation	190	4.01	0.95

TABLE 12. Satisfaction ratings of inservice training needs in the area of planning and evaluation

Rank	Training need item	N	Mean	S.D.
1	Plan implementation	118	3.70	0.77
2	Budgeting	92	3.64	0.78
3	Needs assessment	74	3.61	0.76
4	Principles of program planning	81	3.51	0.78
5	Decision-making	46	3.41	0.88
6	Principles of program evaluation	82	3.38	0.81

Shown in Table 13 and Table 14 are the training needs in the area of extension organization. Table 13 indicates the results of importance

ratings in this area, and Table 14 reports the results of satisfaction ratings. It was revealed that 'utilizing the farmers' organization' was rated the most important (4.62) and also the most satisfactory (3.63) item in this area. 'Cooperation and coordination of extension organization' ranked second in the importance ratings (4.44) and fourth in the satisfaction ratings (3.46).

TABLE 13. Importance ratings of inservice training needs in the area of extension organization

Rank	Training need item	N	Mean	S.D.
1	Utilizing the farmers' organization	193	4.62	0.64
2	Cooperation and coordination of extension organization	187	4.44	0.83
3	Introduction of the current agricultural extension organization and system	190	4.20	0.92
4	Organizational strategies	191	4.20	0.87

The area of leadership contained only two items (Table 15 and Table 16). 'Identifying and training of local leaders' was found more important (4.72) and also more satisfactory (3.72) than 'types of leadership'.

Reported in Table 17 and Table 18 are the importance ratings and satisfaction ratings for the area of teaching techniques. In this area, the highest rated item in the importance ratings was 'Demonstrations'

TABLE 14. Satisfaction ratings of inservice training needs in the area of extension organization

Rank	Training need item	N	Mean	S.D.
1	Utilizing the farmers' organization	123	3.63	0.73
2	Organizational strategies	114	3.56	0.72
3	Introduction of the current agricultural extension organization and system	114	3.54	0.86
4	Cooperation and coordination of extension organization	63	3.46	0.93

TABLE 15. Importance ratings of inservice training needs in the area of leadership

Rank	Training need item	N	Mean	S.D.
1	Identifying and training of local leaders	193	4.72	0.60
2	Types of leadership	193	4.47	0.74

TABLE 16. Satisfaction ratings of inservice training needs in the area of leadership

Rank	Training need item	N	Mean	S.D.
1	Identifying and training of local leaders	137	3.72	0.76
2	Types of leadership	115	3.63	0.78

(4.66), while the respondents were most satisfied with their training in 'short courses' (3.87). 'Farm visitation' ranked second in importance, with a mean of 4.61. The least important (4.00) and satisfactory (3.59) ratings were for 'publications'. 'Recreational activities' was rated fourth in importance (4.19) and satisfaction (3.61) in this area.

TABLE 17. Importance ratings of inservice training needs in the area of teaching techniques

Rank	Training need item	N	Mean	S.D.
1	Demonstrations	195	4.66	0.57
2	Farm visitation	193	4.61	0.68
3	Short courses	194	4.60	0.67
4	Recreational activities	193	4.19	0.79
5	Publications	191	4.00	0.92

The area of producing educational media consisted of four training need items (Table 19 and Table 20). 'Slides and transparencies' ranked first in importance, with a mean of 4.51, and ranked second in satisfaction, with a mean of 3.51. The training need rated most satisfactory was 'display' (3.70). 'Editing' was rated as the least important (3.97) and the least satisfactory (3.38) item in this area.

Seven training needs made up the area of administration. Data in Table 21 show that 'coordination' was rated highest in importance, with

TABLE 18. Satisfaction ratings of inservice training needs in the area of teaching techniques

Rank	Training need item	N	Mean	S.D.
1	Short courses	150	3.87	0.75
2	Demonstrations	152	3.86	0.78
3	Farm visitation	131	3.82	0.75
4	Recreational activities	112	3.61	0.81
5	Publications	51	3.59	0.75

TABLE 19. Importance ratings of inservice training needs in the area of producing educational media

Rank	Training need item	N	Mean	S.D.
1	Slides and transparencies	193	4.51	0.71
2	Display	192	4.30	0.81
3	Models and specimens	193	4.07	0.91
4	Editing	190	3.97	0.91

a mean of 4.67. The training needs ranked second and third in the importance ratings were 'public relations' (4.60) and 'agricultural regulations' (4.58). Table 22 reports that the most satisfactory item in this area was 'public relations', followed by 'coordination' (3.70) and 'agricultural regulation' (3.69). 'Computer applications' was rated

TABLE 20. Satisfaction ratings of inservice training needs in the area of producing educational media

Rank	Training need item	N	Mean	S.D.
1	Display	116	3.70	0.79
2	Slides and transparencies	105	3.51	0.90
3	Models and specimens	47	3.40	0.90
4	Editing	48	3.38	0.67

as the least satisfactory item (3.00), and was rated fifth in importance (4.20).

TABLE 21. Importance ratings of inservice training needs in the area of administration

Rank	Training need item	N	Mean	S.D.
1	Coordination	190	4.67	0.62
2	Public relations	194	4.60	0.71
3	Agricultural regulations	191	4.58	0.72
4	Records and report writing	193	4.33	0.82
5	Computer applications	186	4.20	0.91
6	Statistical reporting	189	4.19	0.89
7	File management	188	4.13	0.92

TABLE 22. Satisfaction ratings of inservice training needs in the area of administration

Rank	Training need item	N	Mean	S.D.
1	Public relations	83	3.74	0.84
2	Coordination	83	3.70	0.84
3	Agricultural regulations	102	3.69	0.84
4	Records and report writing	104	3.58	0.70
5	Statistical reporting	56	3.55	0.78
6	File management	31	3.45	0.77
7	Computer applications	9	3.00	0.87

To provide an overview of both importance and satisfaction ratings in the eight training need areas, data in Table 23 report the ranks, means, and standard deviations of the ratings in each area. The mean ratings on importance levels were all above 4.00, ranging from 4.60 to 4.22; while on level of satisfaction with inservice training, the mean ratings were all below 4.00, ranging from 3.77 to 3.41. The training area of leadership ranked first in importance (4.60) and ranked second in satisfaction (3.68). The training areas ranked second and third in importance were 'introduction of agricultural extension' (4.52) and 'agricultural policy' (4.51). The area 'agricultural policy' was rated least satisfactory (3.41). 'Producing educational media' (3.49) and 'extension organization' (3.54) ranked as the second and third least satisfactory training areas.

TABLE 23. Ranks and mean ratings of importance (I) and satisfaction (S) ratings in training need areas

Training need area	Rank	N	Mean	S.D.
	I/S		I/S	I/S
Introduction of agricultural extension	2/4	195/178	4.52/3.58	.46/.67
Agricultural policy	3/8	192/162	4.51/3.41	.48/.72
Planning and evaluation	4/5	195/151	4.44/3.56	.56/.72
Extension organization	7/6	195/156	4.37/3.54	.60/.67
Leadership	1/2	194/145	4.60/3.68	.59/.74
Teaching techniques	5/1	195/175	4.41/3.77	.53/.65
Producing educational media	8/7	194/144	4.22/3.49	.70/.74
Administration	6/3	195/149	4.39/3.60	.57/.71

Analysis of Training Need Areas by Selected Demographic Variables

To make comparisons between selected demographic variables and the importance and satisfaction ratings, correlations, t-tests, and ANOVA procedures were utilized.

To determine the relationships between ratings in the eight training areas and the respondents' age and years of employment in a local F.A., Pearson Product-Moment correlation coefficients were computed. The scale listed below was used to describe the relationships (Leedy, 1981, p. 115).

0.80 to 1.00	highly dependable relationship
0.60 to 0.79	moderate to marked relationship

0.40 to 0.59	fair degree of relationship
0.20 to 0.39	slight relationship
0.00 to 0.19	negligible or chance relationship

Table 24 reports the correlation coefficients and probability levels of the relationships between respondents' age and the ratings of the eight training areas. It was revealed that only one slight positive relationship (.212), existed between age and the satisfaction ratings in the area of teaching techniques.

TABLE 24. Relationship between importance (I) and satisfaction (S) ratings in training need areas and age of respondents

Training need area	N I/S	Coefficient ¹ I / S	Prob. I / S
Introduction of agricultural extension	195/178	-.123/ .135	.087/.073
Agricultural policy	192/162	-.012/ .062	.869/.435
Planning and evaluation	195/151	-.032/ .060	.658/.468
Extension organization	195/156	.007/ .007	.932/.928
Leadership	194/145	-.119/ .095	.097/.254
Teaching techniques	195/175	-.093/ .212	.194/.005
Producing educational media	194/144	-.131/ .057	.070/.515
Administration	195/149	-.081/ .157	.259/.056

¹Pearson product-moment correlation coefficient.

Data in Table 25 show the relationships existing between years of employment in a local F.A. and the ratings of the eight training need areas. None of the correlation coefficients indicated more than a chance or negligible relationship between variables.

TABLE 25. Relationship between importance (I) and satisfaction (S) ratings of training need areas and years of employment in F.A.

Training need area	N I/S	Coefficient ¹ I / S	Prob. I / S
Introduction of agricultural extension	194/177	-.165 / .124	.021/.101
Agricultural policy	191/161	-.063 / .089	.384/.259
Planning and evaluation	194/150	-.089 / .062	.220/.449
Extension organization	194/155	-.056 / .025	.438/.757
Leadership	193/144	-.153 / .090	.034/.282
Teaching techniques	194/174	-.142 / .175	.048/.021
Producing educational media	193/143	-.135 / .051	.062/.544
Administration	194/148	-.138 / .168	.056/.041

¹Pearson product-moment correlation coefficient.

To determine if any significant differences existed in training area ratings when grouped by gender and educational level, the t-test was employed. A comparison of the mean ratings between male and female

extension advisors is shown in Table 26. A significant difference, at the .05 level, was found in the importance ratings in the area of producing educational media. In the satisfaction ratings, significant differences were found, at the .01 level, in the areas of agricultural policy and planning and evaluation. It can be concluded that female respondents perceived 'producing educational media' as a more important training need and were less satisfied with the way their training needs had been met in the areas of 'agricultural policy' and 'planning and evaluation'.

In Table 27, the mean ratings obtained from respondents grouped by educational level were compared. A significant difference, at the .05 level, existed in the area of agricultural policy in the importance ratings, and a significant difference, at the .05 level, was found in 'teaching techniques' in the satisfaction ratings. It can be concluded that respondents who were college graduates rated the area 'agricultural policy' lower in importance, and were less satisfied with the way their training needs in 'teaching techniques' were being met.

The ANOVA procedure was used to compare the mean ratings of the eight training areas when grouped by the employment position and years of employment in a local F.A.

Table 28 reports the mean importance ratings of the training areas when grouped by employment position. A significant difference, at the .05 level, existed in the area of producing educational media. The results of Tukey test, at the .05 level, indicated that the difference

TABLE 26. A comparison of importance and satisfaction ratings of training need areas when grouped by gender

Training need area	Male n Mean/S.D.	Female n Mean/S.D.	t- Value	Prob.
IMPORTANCE RATING:				
Introduction of agricultural extension	155 4.51/0.48	40 4.57/0.40	-0.75	.457
Agricultural policy	154 4.49/0.48	38 4.56/0.47	-0.88	.380
Planning and evaluation	155 4.42/0.56	40 4.49/0.59	-0.64	.523
Extension organization	155 4.38/0.59	40 4.30/0.66	0.74	.461
Leadership	154 4.56/0.62	40 4.71/0.48	-1.40	.162
Teaching techniques	155 4.38/0.56	40 4.53/0.42	-1.60	.111
Producing educational media	154 4.17/0.73	40 4.42/0.53	-2.46*	.016
Administration	155 4.39/0.58	40 4.35/0.52	0.41	.684
SATISFACTION RATING:				
Introduction of agricultural extension	146 3.61/0.66	32 3.47/0.71	1.09	.279
Agricultural policy	137 3.46/0.74	25 3.10/0.49	3.03**	.004
Planning and evaluation	123 3.63/2.71	28 3.22/0.68	2.84**	.005
Extension organization	124 3.59/0.68	32 3.34/0.61	1.92	.057
Leadership	118 3.67/0.75	27 3.69/0.71	-0.07	.943
Teaching techniques	142 3.79/0.66	33 3.68/0.64	0.90	.370
Producing educational media	113 3.50/0.76	31 3.46/0.70	0.27	.789
Administration	117 3.64/0.72	32 3.45/0.65	1.39	.168

**Significant at the 0.01 level.

*Significant at the 0.05 level.

TABLE 27. A comparison of importance and satisfaction ratings of training need areas when grouped by educational level

Training need area	Vocational n Mean/S.D.	College n Mean/S.D.	t- Value	Prob.
IMPORTANCE RATING:				
Introduction of agricultural extension	137 4.54/0.47	52 4.48/0.43	0.84	.401
Agricultural policy	134 4.56/0.46	52 4.40/0.50	2.01*	.046
Planning and evaluation	137 4.50/0.52	52 4.35/0.59	1.71	.088
Extension organization	137 4.39/0.59	52 4.29/0.67	1.05	.295
Leadership	136 4.60/0.58	52 4.63/0.60	-0.37	.712
Teaching techniques	137 4.41/0.56	52 4.45/0.48	-0.46	.648
Producing educational media	136 4.20/0.70	52 4.30/0.73	-0.78	.435
Administration	137 4.38/0.61	52 4.44/0.45	-0.70	.488
SATISFACTION RATING:				
Introduction of agricultural extension	128 3.58/0.67	44 3.53/0.68	0.41	.685
Agricultural policy	114 3.42/0.69	43 3.35/0.80	0.52	.605
Planning and evaluation	108 3.58/0.72	38 3.49/0.76	0.68	.499
Extension organization	112 3.57/0.67	39 3.50/0.68	0.56	.578
Leadership	104 3.69/0.74	37 3.65/0.79	0.30	.762
Teaching techniques	127 3.82/0.65	42 3.59/0.64	2.05*	.042
Producing educational media	107 3.49/0.72	32 3.46/0.82	0.20	.845
Administration	109 3.61/0.70	37 3.58/0.76	0.20	.840

*Significant at the 0.05 level.

was between the home economics group and the 4-H group. It was concluded that the home economics advisors rated 'producing educational media' significantly higher in importance. No significant differences were found in satisfaction ratings (Table 29) between the two variables.

No significant difference was found in the importance ratings (Table 30) of the training areas when grouped by year range of employment in a local F.A. However, four significant differences, at the .05 level, were found in the satisfaction ratings (Table 31) of the training areas of extension organization, teaching techniques, producing educational media, and administration, respectively. The results of Tukey and Scheffé tests indicated that the differences were all between the 1-5 year group and the 10-14 year group. The data indicated that extension advisors who had been employed for 1 to 5 years in a local F.A. felt less satisfied than those who had been employed for 10 to 14 years with their training in the areas of extension organization, teaching techniques, producing educational media, and administration.

Table 28. A comparison of importance ratings in each training need area by employment position

Training need area	Director (A)		Farm (B)		Home (C)		4-H (D)		F-ratio	Prob.
	Mean n	S.D.	Mean n	S.D.	Mean n	S.D.	Mean n	S.D.		
Introduction of agricultural extension	38	4.42 0.44	85	4.59 0.49	37	4.54 0.41	35	4.45 0.45	1.52	.211
Agricultural policy	37	4.48 0.46	85	4.50 0.47	35	4.55 0.48	35	4.51 0.54	0.12	.946
Planning and evaluation	38	4.41 0.54	85	4.46 0.56	37	4.47 0.61	35	4.38 0.56	0.24	.869
Extension organization	38	4.34 0.55	85	4.44 0.60	37	4.25 0.68	35	4.36 0.60	0.90	.441
Leadership	38	4.42 0.67	84	4.64 0.52	37	4.76 0.44	35	4.51 0.75	2.41	.068
Teaching techniques	38	4.31 0.53	85	4.41 0.50	37	4.58 0.37	35	4.35 0.71	1.81	.147
Producing educational media	38	4.11 0.69	84	4.24 0.71	37	4.47 0.46	35	4.02 0.82	2.95*	.034
Administration	38	4.38 0.53	85	4.43 0.60	37	4.39 0.49	35	4.28 0.68	C > D 0.61	.609

*Significant at the 0.05 level.

Table 29. A comparison of satisfaction ratings in each training need area by employment position

Training need area	Director		Farm		Home		4-H		F-ratio	Prob.
	Mean n	S.D.	Mean n	S.D.	Mean n	S.D.	Mean n	S.D.		
Introduction of agricultural extension	37	3.53 0.57	80	3.62 0.72	31	3.47 0.72	30	3.64 0.60	0.52	.670
Agricultural policy	35	3.41 0.73	74	3.51 0.75	22	3.14 0.47	31	3.34 0.76	1.68	.175
Planning and evaluation	33	3.62 0.57	68	3.68 0.79	25	3.26 0.68	25	3.43 0.68	2.48	.063
Extension organization	31	3.48 0.60	65	3.67 0.74	29	3.36 0.62	31	3.50 0.60	1.63	.184
Leadership	30	3.55 0.65	62	3.69 0.83	25	3.70 0.72	28	3.77 0.66	0.44	.726
Teaching techniques	35	3.80 0.52	76	3.79 0.70	31	3.67 0.66	33	3.78 0.67	0.30	.828
Producing educational media	32	3.46 0.73	56	3.55 0.85	31	3.48 0.66	25	3.43 0.63	0.21	.889
Administration	31	3.71 0.65	60	3.62 0.75	29	3.50 0.62	29	3.54 0.75	0.54	.654

Table 30. A comparison of importance ratings in each training need area by year range of employment in the local F.A.

Training need area	Year range of employment						F-ratio	Prob.
	1-5	6-9	10-14	15-35	Mean	S.D.		
	Mean n	Mean n	Mean n	Mean n	Mean n	S.D. S.D.		
Introduction of agricultural extension	4.63 53	4.51 51	4.54 41	4.40 49	4.54 0.47	4.50 0.42	2.16	.094
Agricultural policy	4.51 53	4.53 51	4.60 40	4.42 47	4.53 0.51	0.35 0.45	1.16	.328
Planning and evaluation	4.57 53	4.35 51	4.47 41	4.37 49	4.35 0.63	0.54 0.53	1.71	.166
Extension organization	4.43 53	4.37 51	4.39 41	4.29 49	4.37 0.62	0.60 0.53	0.46	.710
Leadership	4.68 53	4.67 50	4.56 41	4.48 49	4.56 0.51	0.70 0.62	1.30	.276
Teaching techniques	4.55 53	4.43 51	4.34 41	4.32 49	4.43 0.57	0.61 0.47	1.91	.129
Producing educational media	4.37 53	4.19 51	4.27 40	4.06 49	4.19 0.69	0.72 0.68	1.86	.138
Administration	4.52 53	4.41 51	4.38 41	4.25 49	4.41 0.53	0.62 0.57	2.05	.108

Table 31. A comparison of satisfaction ratings in each training need area by year range of employment in the local F.A.

Training need area	Year range of employment								F-ratio	Prob.
	1-5 (A)	6-9 (B)	10-14 (C)	15-35 (D)	Mean	S.D.	n	Mean		
Introduction of agricultural extension	44	46	39	48	3.47 0.72	3.46 0.72	3.73 0.65	3.68 0.57	1.96	.122
Agricultural policy	40	42	35	44	3.34 0.72	3.26 0.72	3.52 0.76	3.50 0.70	1.23	.301
Planning and evaluation	33	39	37	41	3.49 0.79	3.40 0.74	3.77 0.72	3.55 0.61	1.84	.142
Extension organization	42	35	38	40	3.38 0.66	3.49 0.70	3.81 0.64	3.49 0.64	3.12*	.028
Leadership	38	35	33	38	3.51 0.84	3.64 0.82	3.83 0.68	3.72 0.60	1.18	.321
Teaching techniques	44	44	39	47	3.53 0.73	3.75 0.67	3.94 0.66	3.87 0.49	3.43*	.018
Producing educational media	32	40	31	40	3.30 0.88	3.48 0.67	3.80 0.71	3.41 0.66	2.80*	.042
Administration	41	33	34	41	3.35 0.73	3.59 0.74	3.79 0.74	3.70 0.56	3.01*	.032

*Significant at the 0.05 level.

CHAPTER V. SUMMARY, DISCUSSION AND RECOMMENDATIONS

Summary

This study was designed to assess the inservice training needs, focusing on extension techniques, of the local agricultural extension advisors in Taiwan. Specifically, the objectives of this study were: (1) to obtain demographic information from the extension advisors involved in this investigation, (2) to identify and rate the importance of the inservice training needs as perceived by the agricultural extension advisors, (3) to ascertain the extension advisors' attitudes towards the effectiveness of the existing extension training program in fulfilling the identified needs, (4) to detect the relationships between training need ratings and selected demographic variables, and (5) to determine if any significant differences existed in the perceived training needs between extension advisors with different backgrounds.

Out of the 1549 local agricultural extension advisors in Taiwan, 300 were selected using a proportional stratified sampling method to participate in the investigation. To collect the data in this investigation, a questionnaire was developed and mailed to the 300 selected extension advisors. A five-point scale was used for the importance and satisfaction ratings of the training need items. A total of 211 (70.3%) participants returned the questionnaire, and 195 (65.0%) questionnaires were complete and usable.

Frequencies were computed for each item on the questionnaire. Pearson product-moment correlation coefficients were computed to detect relationships between the training need ratings and selected demographic variables. In addition, t-tests and one-way analysis of variance tests were utilized to determine if any significant differences existed between the training need ratings and selected demographic variables.

Following is a brief review of the findings of this study:

1. Approximately one-fourth of the respondents were college graduates. Most of the remainder had graduated from vocational school.
2. The ages of the respondents ranged from 21 to 64. Approximately 60 percent was in the 30 to 40 years of age range.
3. The years respondents were employed in a local F.A. ranged from 1 to 35. The 1 to 5 year range included about one-fourth of the respondents. Approximately one-half of the respondents were in the 6 to 14 year range.
4. The years respondents were employed in their current position ranged from 1 to 31. Approximately one-half of the respondents were in the 1 to 5 year range.
5. The number of times respondents had attended inservice training programs ranged from 0 to 37. Seventy-two (38.9%) extension advisors attended one or two times. More than 28 percent of the respondents participated more than five times.

6. More than 55 percent participants indicated a positive attitude toward the sufficiency of previous inservice training programs. However, a negative attitude was indicated by the remainder.
7. The mean importance ratings of all eight training need areas were all above 4.00, on the five-point scale, while the mean satisfaction ratings were all between 3.00 and 4.00.
8. The three most important training need areas, in descending order, were: leadership, introduction of agricultural extension, and agricultural policy. The five overall training need items rated most important, in descending order, were: communication, training of future farmers, the role and responsibilities of agricultural extension advisors, marketing, identifying and training of local leaders.
9. The three least satisfactory training need areas, in descending order, were: agricultural policy, producing educational media, and extension organization. The five overall training need items rated least satisfactory, in descending order, were: computer applications, policies of pricing agricultural products, marketing, editing, principles of program evaluation.
10. Most of the relationships detected in this study could only be considered negligible or chance. Only one slight positive relationship (correlation coefficient = .212), significant at

the .01 level, was found between the age of respondents and the satisfaction ratings in the area of teaching techniques.

11. The importance of the training area 'producing educational media' was rated significantly higher by female respondents when compared to the ratings of male respondents. In addition, it was found that female respondents were significantly less satisfied with their training in the areas of 'agricultural policy' and 'planning and evaluation'.
12. The importance ratings of college graduates in the training need area 'agricultural policy' were significantly higher than the ratings of the vocational school graduates. In the satisfaction ratings, college graduates rated the area of producing educational media significantly lower.
13. In the importance ratings of the area 'producing educational media', the ratings of the home economic advisors were significantly higher than the ratings of the 4-H advisors.
14. When grouped by the year range of employment, it was found that the 1 to 5 year group were significantly less satisfied with the training in the areas of extension organization, teaching techniques, producing educational media, and administration when compared with the 10 to 14 year group.

Discussion

When comparing the years of employment of the respondents in their current position with the years in a local F.A., it was found that of the advisors who were in their current positions for the first five years, only half were in the first five years of employment in a local F.A. The other half had transferred from other positions in a local F.A. during their latest five years of employment. A similar situation was also found by Liu in 1967. These findings suggest that the inservice training for extension advisors is important since preservice training may not help approximately one-half of the advisors in their current tasks.

Comparisons were made between the eight training need areas and the demographic variables. One slight relationship (correlation coefficient = .212), at the .01 level, was found between the respondents' age and the satisfaction ratings in the area of teaching techniques. It was revealed that the older the respondents were, the more satisfied they tended to be with the training in 'teaching techniques'. One explanation for this relationship could be that the older extension advisors have more experience and understanding concerning the teaching of clientele. Also, they may have less expectations regarding training in this area when compared to younger advisors. This finding suggests a need for a further study in the training needs of younger advisors in 'teaching techniques'.

Three significant differences were found in the mean ratings of the training areas when grouped by the gender of the respondents. It was found that female advisors perceived 'producing educational media' as more important. This may be because that most female respondents were home economics advisors, and they usually have more classroom teaching than other extension advisors. 'Producing educational media' maybe important in helping them with classroom teaching. In the satisfaction ratings, females rated the areas 'agricultural policy' and 'planning and evaluation' significantly lower. One explanation could be that most of the female advisors were Home Economics College graduates. They may not be as well trained and informed with the basics of agricultural policy or program planning and evaluation. Female advisors may need more training in these areas.

When grouped by educational level, college or vocational school, two significant differences were found in the mean ratings of the training areas. The extension advisors who were college graduates perceived the area of agricultural policy as more important. This finding may imply that the respondents who were college graduates may have a higher perception of the importance of the agricultural policies as the base of extension programs in Taiwan. They may prefer training programs with more detail in agricultural policy. In addition, the college graduate advisors were less satisfied with their training in the area of teaching techniques. It may be possible that the colleges teach more about teaching techniques when compared to vocational schools. The

college graduates may need more specific and intensive training in 'teaching techniques'.

In comparing the mean ratings of the eight training areas, when grouped by employment position, it was found that the home economics advisors perceived 'producing educational media' as more important as compared to the ratings of 4-H advisors. This may be explained by the fact that the home economics advisors were all female. It was indicated in the above discussion that female respondents perceived 'producing educational media' as more important.

Four significant differences were found in the satisfaction ratings of the training areas when grouped by the years of employment in a local F.A. It was found that the extension advisors who had been employed for 1 to 5 years in a local F.A. were less satisfied with the training in 'extension organization', 'teaching techniques', 'producing educational media', and 'administration' than those who had been employed for 10 to 14 years. One explanation for these findings could be that the beginning extension advisors felt less competent in these areas and felt a need for more specific training in these areas. More resources and time may need to be devoted to the training of the beginning extension advisors in these areas.

It is interesting to note that the satisfaction ratings of the area 'teaching techniques' were significantly different when grouped by year range of employment and educational level. Moreover, a slight relationship was found between age and the satisfaction ratings of

'teaching techniques'. These findings suggest that factors such as age, years of employment, and educational level of the extension advisors may need to be taken into consideration in planning and conducting extension advisor inservice programs in the area of teaching techniques.

In examining the mean ratings of inservice training needs, it is apparent that the extension advisors who participated in this investigation tended to rate the importance level of the training needs higher than the satisfaction level. The three most important training need areas, as discussed in the following paragraphs, were: leadership, introduction of agricultural extension, and agricultural policy.

The training need item of identifying and training of local leaders ranked fifth in the importance ratings of all the 40 training needs. Since local leaders play an important role as to assist in conducting extension programs in the rural society of Taiwan, effective use of the local leaders can be valuable to the local extension advisors. The finding suggests that the extension inservice programs should provide training in the ways and approaches to identify and effectively train local leaders.

In the area of introduction of agricultural extension, 'communication' was rated as the most important item. This item was also found to be most important in all the 40 training need items. These findings suggest that inservice programs for extension advisors need to place emphasis on communication techniques and approaches. 'The role and responsibilities of agricultural extension advisors' ranked

second in this area and third in all the 40 training need items. Since approximately half of the advisors changed positions after they had completed their preservice training program, it is important that the inservice programs assist the extension advisors in understanding their role and responsibilities.

In the area of agricultural policy, the three most important training need items were training of future farmers, marketing, and policies of pricing agricultural products. These items ranked second, fourth, and sixth respectively in the 40 items. In considering the local extension advisors' role as an essential link between government and rural society, the inservice programs may need to devote more resources in developing comprehensive and detailed courses regarding the policies of training future farmers, marketing, and pricing of agricultural products, including ways to conduct these policies.

In the satisfaction ratings, the area of agricultural policy was rated as least satisfactory. The next two, in order, were 'producing educational media' and 'extension organization'. Since 'agricultural policy' ranked third in the importance ratings of the eight areas, it can be concluded that the extension inservice program developers should pay attention to this area. The training need items 'policies of pricing agricultural products' and 'marketing' were rated as second and third least satisfactory respectively in all the 40 items; but as fourth and sixth important respectively in all the 40 items. These findings suggest a definite need for improvement in the inservice training of the

extension advisors regarding the policies of pricing and marketing agricultural products.

The second least satisfactory area, producing educational media, was rated lowest in importance. The training need items 'editing' and 'models and specimens' were rated as fourth and sixth least satisfactory respectively in the 40 items, and as first and fourth least important respectively in the 40 items. These findings suggest that the extension inservice programs may need to change the style or content of the training concerning these two items or reduce the amount of training regarding these two items.

The area of extension organization was rated as third least satisfactory and second least important. The least satisfactory item in this area was cooperation and coordination of extension organization, which was rated as second in importance in this area. It could be concluded that the inservice program developers need to find more effective ways to teach cooperation and coordination of extension organization.

It was interesting to note that the training need item 'computer applications' was rated as least satisfactory and thirtieth in importance in the 40 items. Computerization has been a great tendency in office administration. Although the extension advisors may not perceive the importance of computer applications at this time, they may need basic knowledge and technology of using computer in their daily tasks in the near future. An effort needs to be made to improve the

training of computer applications for the extension advisors if this is to be a priority in extension.

Recommendations

Based upon the findings of this investigation, the following recommendations are made which may contribute to the improvement of the inservice training programs of agricultural extension advisors in Taiwan.

1. Communication techniques and methods should be strengthened in the inservice programs for extension advisors. Program developers need to evaluate the extension advisors' abilities in communication and design training courses with an emphasis on effective and efficient ways of communication.
2. It is recommended that training in leadership development needs to be emphasized in the inservice programs of the agricultural extension advisors. Appropriate approaches and means of identifying and training local leaders should be provided in the inservice programs.
3. Due to the relatively low degree of satisfaction indicated by the respondents regarding their training in the area of agricultural policies, there is a need for a study to examine the effectiveness of the existing training programs in this area, and to determine the most appropriate content and ways to conduct this training.

4. Considering the great trend of using computers in office administration and the insufficiency of the training of computer applications in the extension advisor inservice programs, it is recommended that the extension inservice programs include computer instruction with a focus on basic knowledge and practical applications.
5. Since most significant differences in the ratings of the training needs were attributed to the differences of extension advisors' years of employment, position of employment, and educational level, it is important to consider these factors when planning and conducting inservice programs for agricultural extension advisors. It is suggested that the extension advisors with different backgrounds in the employment position, years of employment, and educational level may need to attend different inservice programs.
6. A study to identify the concerns of rural people regarding the inservice training needs of the agricultural extension advisors needs to be conducted in order to increase the effectiveness and practicability of the inservice programs.
7. It is recommended that a continuous endeavor be made in further research of the inservice training needs of agricultural extension advisors with a focus in specific training areas. This type of study provides a general

overview of the inservice training needs of the extension advisors; however, more detailed studies concerning a specific training area may be of value in helping inservice program designers to develop inservice programs in specific training areas.

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APPENDIX A. RANKING OF ALL FORTY TRAINING NEED ITEMS ON
IMPORTANCE (I) AND SATISFACTION (S) LEVEL

Ranking of all forty training need items on
importance (I) and satisfaction (S) level

Training need item	Rank I / S	Mean I / S
INTRODUCTION OF AGRICULTURAL EXTENSION		
The role and responsibilities of agricultural extension advisors	3/17	4.74/3.62
Communication	1/ 4	4.80/3.76
Adult education	35/13	4.15/3.63
Innovation and adoption	9/20	4.68/3.59
Management	28/27	4.20/3.49
AGRICULTURAL POLICY		
Policies for pricing agricultural products	6/39	4.70/3.12
Joint farm programs	23/28	4.34/3.48
Utilization of agricultural resources	22/29	4.41/3.47
Agricultural finance	21/32	4.43/3.44
Marketing	4/38	4.73/3.19
Societal development	34/33	4.16/3.43
Training of future farmers	2/ 5	4.75/3.75
PLANNING AND EVALUATION		
Needs assessment	7/18	4.68/3.61
Principles of program planning	25/25	4.30/3.51
Plan implementation	8/ 8	4.68/3.70
Principles of program evaluation	38/36	4.01/3.38
Decision-making	27/34	4.28/3.41
Budgeting	12/12	4.63/3.64
EXTENSION ORGANIZATION		
Introduction of the current agricultural extension organization and system	29/24	4.20/3.54
Cooperation and coordination of extension organization	20/31	4.44/3.46

(Continued)

Training need item	Rank I / S	Mean I / S
Organizational strategies	31/22	4.20/3.56
Utilizing farmers' organization	13/15	4.62/3.63
LEADERSHIP		
Types of leadership	19/14	4.47/3.63
Identifying and training of local leaders	5/ 7	4.72/3.72
TEACHING TECHNIQUES		
Farm visitation	14/ 3	4.61/3.82
Short courses	15/ 1	4.60/3.87
Demonstrations	11/ 2	4.66/3.86
Publications	39/19	4.00/3.59
Recreational activities	32/16	4.19/3.62
PRODUCING EDUCATIONAL MEDIA		
Slides and transparencies	18/26	4.51/3.51
Editing	40/37	3.97/3.38
Display	26/10	4.30/3.70
Models and specimens	37/35	4.07/3.40
ADMINISTRATION		
Agricultural regulations	17/11	4.58/3.69
File management	36/30	4.13/3.45
Records and report writing	24/21	4.33/3.58
Public relations	16/ 6	4.60/3.74
Coordination	10/ 9	4.67/3.70
Statistical reporting	33/23	4.19/3.55
Computer applications	30/40	4.20/3.00

APPENDIX B. PERSONS INTERVIEWED FOR THE DEVELOPMENT OF
THE QUESTIONNAIRE

Persons interviewed for the development of the questionnaire

- Mr. Chang, Kun-lun Senior Specialist, Department of Farmers Service,
Council for Agricultural Planning and Development,
Executive Yuan.
- Mr. Chang, Shang-sih Department of Agricultural Supplies & Marketing,
Bureau of Agriculture,
Ministry of Economic Affairs
- Mr. Kau, Cheng-shen Director, Department of Agricultural Extension,
Taiwan Provincial Farmers' Association
- Dr. Liu, Ching-yung Professor, Department of Agricultural Extension,
National Taiwan University
- Dr. Shiao, Kun Sun Professor, Department of Agricultural Extension,
National Taiwan University
- Dr. Wu, Tsong-shien Professor, Department of Agricultural Extension,
National Taiwan University

APPENDIX C. CORRESPONDENCE

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A Needs Assessment of the Inservice Training Program for
Agricultural Extension Advisors in Taiwan

Dear Sir:

We are conducting a needs assessment study concerning the inservice training program for agricultural extension advisors. The purpose of this study is to improve the effectiveness of the training program. We would like to ask you to help making efforts for the improvement with us.

Would you complete the attached form carefully following the directions provided? After checking if all questions have been answered, please return this form using the postage paid business reply mail panel on the back page. We hope to receive your response within ten days.

The answers provided on the form will be kept confidential. We appreciate your cooperation and contribution to this needs assessment study.

Department of Agricultural Extension
National Taiwan University

✓ Part I.

Direction: Please answer the following questions by checking the responses or by filling the blank to describe your current situation.

1. Age ____

2. Gender Male
 Female

3. Highest educational level Junior high school or below
 High school
 Vocational School
 College or higher
4. Job title Director of extension advisors
 Farm extension advisor
 Home economics advisor
 4-H advisors
5. How long have you been employed in F.A.? years and months
6. How long have you been employed in your current position?
 years and months
7. Have you ever participated agricultural extension inservice training program dealing with the field of extension techniques?
 Yes, I have participated for times
 No
8. What type(s) of training program(s) do you feel should be reinforced?
 Agrucultural techniques inservice training program
 Extension techniques inservice training program
 Both
9. If you replied "yes" to question 7, then, is the content of the programs you have participated sufficient in quality?
 Very sufficient
 Somewhat sufficient
 Somewhat insufficient
 Very insufficient
10. Please let us know your suggestions for the improvement of the inservice training programs.
-
-

Part II.

Direction: Each of the following describes an inservice training need of the agricultural extension advisors. Please use the five-point scale shown below to indicate the importance and satisfaction level for each training need item.

1	2	3	4	5

not important	moderate	very important		
not satisfactory	moderate	very satisfactory		

Area	Training Need Items	Importance					Provided or not		Satisfaction				
		1	2	3	4	5	Yes	No	1	2	3	4	5
A. Introduction of ag. extension	1. The role and responsibility of agricultural extension advisors												
	2. Communication												
	3. Adult education												
	4. Innovation and adoption												
	5. Management												
B. Agricultural policy	6. Policies of pricing agricultural products												
	7. Joint farm programs												
	8. Utilization of agricultural resources												
	9. Agricultural finance												
	10. Marketing												
	11. Societal development												
	12. Training of future farmers												
C. Planning and evaluation	13. Needs assessment												
	14. Principles of program planning												
	15. Plan implementation												
	16. Principles of program evaluation												
	17. Decision-making												
	18. Budgeting												

Area	Training need item	Importance					Provided or not		Satisfaction					
		1	2	3	4	5	Yes	No	1	2	3	4	5	
D. Extension organization	19. Introduction of the current agricultural extension organization and system													
	20. Cooperation and coordination of extension organization													
	21. Organizational strategies													
	22. Utilizing farmers' organization													
E. Leadership	23. Types of leadership													
	24. Identifying and training of local leaders													
F. Teaching techniques	25. Farm visitation													
	26. Short courses													
	27. Demonstration													
	28. Publications													
	29. Recreational activities													
G. Producing educ. media	30. Slides and transparencies													
	31. Editing													
	32. Display													
	33. Models and specimens													
H. Administration	34. Agricultural regulations													
	35. File management													
	36. Records and report writing													
	37. Public relations													
	38. Coordination													
	39. Statistical reporting													
	40. Computer applications													

台灣省基層農會農業推廣員訓練需求之評估問卷

敬啟者：您好

農會基層指導員之訓練近年來已成為各級政府及學術機關極為重視的一大課題。本系學生刻正進行「推廣員訓練需求評估」之研究，懇請您花十分鐘的時間填答這份問卷，將您切身的訓練需求及寶貴的意見提供給我們參考。

本問卷純為學術研究之用，並著重於推廣方法與組織方面之訓練計畫。請安心作答，並敬請於收到問卷後五天內填妥寄回（回郵已附，您只需摺疊後裝訂好，即可寄回）。我們亟需您的幫助與支持，非常感激您的合作。祝您

萬事如意

國立台灣大學農業推廣系 敬啟

臺北市羅斯福路四段一號

國立臺灣大學農推學系 收

農會啟

一、基本資料

- 1 年齡：您是民國_____年出生的。
- 2 性別：___男，___女（請勾選）。
- 3 教育程度：（請勾選）
 - _____ 初中或初中以下
 - _____ 高中
 - _____ 高職或高農
 - _____ 大專
- 4 工作職稱：（請勾選）
 - _____ 推廣股長
 - _____ 農事指導員
 - _____ 家政指導員
 - _____ 四健指導員
- 5 您在農會已工作了多久？共___年___月。
- 6 您在現在的職位已工作了多久？共___年___月。
- 7 除了改良場舉辦的農業技術訓練班或研習會以外，您是否曾參加過其他的推廣人員訓練或研習會？
 - _____ 是，共_____次。
 - _____ 否
- 8 您覺得您比較需要參加那一類型的訓練班？（請勾選）
 - _____ 農業技術方面
 - _____ 農業推廣方法與組織，以及農業政策方面
 - _____ 以上二者都需要
- 9 若您在第7題中填答“是”，那麼以您的經驗，您覺得這些訓練班的內容足夠嗎？
 - _____ 很足夠，_____ 尚足夠，_____ 不大夠，_____ 很不夠
 您有什麼改進意見嗎？請略述於下：

二、訓練需求之評估

下列各項目係擬定推廣人員訓練班課程時經常列入的項目。請依下面之說明，勾選合適的答案。

第一欄（重要性欄）：有關左列之課程項目（例如第一題：傳播與溝通），請依您所認為的重要性，勾選合適之項目。

第二欄（曾否學過）：有關這一項目（例：傳播與溝通），您是否曾在推廣員訓練班中接受過此方面的訓練？請勾選“是”或“否”。

第三欄（受訓滿意程度）：若您在第二欄勾選“是”，表示您曾在推廣員訓練班中接受過此方面的訓練。請依您受訓後所感到的滿意程度，勾選合適之項目。若您在第二欄勾選“否”，則免答此欄。

類別	項目	重要性					是否學過		受訓滿意程度				
		很不重要	不太重要	普通	有點重要	很重要	是	否	很不滿意	不太滿意	普通	還算滿意	很滿意
一 農業 推廣 概論	1. 傳播與溝通												
	2. 農業推廣人員之角色與任務												
	3. 成人教育理論與方法												
	4. 促進農民接受新事物												
	5. 管理概論												
二 農 業 政 策	6. 農產品價格												
	7. 共同經營與委託經營												
	8. 農業資源利用												
	9. 農業資金籌措												
	10. 產銷規劃												
	11. 社區發展												
	12. 未來農民之培養												
三 計 畫 與 考 評	13. 了解農民需要那方面之輔導												
	14. 計劃原理及方法												
	15. 計劃執行												
	16. 考評原理及方法												
	17. 決策制定												
	18. 預算編製												
四 推 廣 組 織	19. 現行農業推廣組織系統介紹												
	20. 現行各級農業推廣單位之協調合作												

類別	項目	重要性					是否學過		受訓滿意程度				
		很不重要	不太重要	普通	有點重要	很重要	是	否	很不滿意	不太滿意	普通	還算滿意	很滿意
四 推 廣 組 織	21.組織原理及方法												
	22.農民組織之有效運用												
五 領 導 能 力	23.各類領導方式之介紹												
	24.地方領導人才之發掘與培養												
六 推 廣 教 學 方 法	25.農場農家訪問												
	26.講習會及短期課程												
	27.示範會及觀摩會												
	28.出版物												
七 推 廣 教 材 製 作	29.育樂活動												
	30.幻灯片及投影片												
	31.編輯方法												
	32.掛圖及絨布板												
八 行 政 管 理	33.標本及模型												
	34.農業法規												
	35.檔案管理												
	36.工作記錄與報告撰寫												
	37.公共關係												
	38.意見溝通												
	39.統計報表之製作												
	40.電腦資訊管理												

Follow-up post card reminder

Dear Sir:

About ten days ago, we mailed a form to you concerning a needs assessment study of the inservice training program for the agricultural extension advisors. If you have not returned it to us, would you please mail it at your earliest convenience.

We sincerely appreciate your cooperation and assistance.

Department of agricultural extension
National Taiwan University

敬啓者：

您好！前次寄奉之「台灣省基層農會推廣員訓練需求之評估」問卷，諒已收悉——由於研究期限之限制，我們極需儘快收回問卷，進行統計分析的工作。若您尚未將問卷寄回，請儘速填妥後寄出。懇請您給予我們充分的支持與合作。

謝謝您的大力幫助，敬祝
萬事如意！

臺大農推系 敬上

APPENDIX D. SPSSX PROGRAM FOR DATA ANALYSIS

```

//CHU JOB
//LEE EXEC SPSSX
//MYDATA DD DSN=C.I8713.CHUDATA,UNIT=DISK,DISP=SHR
//SPSSX.SYSIN DD *
SET WIDTH=80
DATA LIST FILE=MYDATA FIXED RECORDS=2
  /1 ID 2-4 GR 5 AR 6 AGE 8-9 SEX 10 ED 11 PO 12 EY 13-14 PY 15-16
    PA 17 TI 18-19 TR 20 SU 21 I1 TO I40 23-62 P1 TO P10 64-73
  /2 P11 TO P40 3-32 S1 TO S40 34-73
VARIABLE LABEL ID "ID # " GR "GROUP" AR "AREA" AGE "AGE" SEX "SEX"
ED "EDUCATIONAL LEVEL" PO "POSITION" EY "EMPLOYED YEARS"
PY "POSITION YEARS" PA "PARTICIPATED OR NOT" TI "TIMES"
TR "TRAINING NEEDED" SU "SUFFICIENT OR NOT"
I1 "IMPORTANCE" P1 "PROVIDED OR NOT"
S1 "SATISFACTION"
MISSING VALUES PA (9) ED (9) EY(99) PY(99) TI(99) TR (9) SU (9)
      I1 TO I40 (9) P1 TO P40 (9) S1 TO S40 (9)
FREQUENCIES VARIABLE=GR TO S40/
  FORMAT=ONEPAGE INDEX/
  STATISTICS
COMPUTE IA=0
COMPUTE IA=MEAN(I1 TO I5)
COMPUTE IB=0
COMPUTE IB=MEAN(I6 TO I12)
COMPUTE IC=0
COMPUTE IC=MEAN(I13 TO I18)
COMPUTE IMD=0
COMPUTE IMD=MEAN(I19 TO I22)
COMPUTE IE=0
COMPUTE IE=MEAN(I23 TO I24)
COMPUTE IF=0
COMPUTE IF=MEAN(I25 TO I29)
COMPUTE IG=0
COMPUTE IG=MEAN(I30 TO I33)
COMPUTE IH=0
COMPUTE IH=MEAN(I34 TO I40)
COMPUTE SA=0
COMPUTE SA=MEAN(S1 TO S5)
COMPUTE SB=0
COMPUTE SB=MEAN(S6 TO S12)
COMPUTE SC=0
COMPUTE SC=MEAN(S13 TO S18)
COMPUTE SD=0
COMPUTE SD=MEAN(S19 TO S22)
COMPUTE SE=0
COMPUTE SE=MEAN(S23 TO S24)
COMPUTE SF=0
COMPUTE SF=MEAN(S25 TO S29)
COMPUTE SG=0
COMPUTE SG=MEAN(S30 TO S33)
COMPUTE SH=0
COMPUTE SH=MEAN(S34 TO S40)
FREQUENCIES VARIABLES = IA TO SH/
  STATISTICS
RELIABILITY VARIABLES=I1 TO I40 S1 TO S40/
  SCALE(IMF)=I1 TO I40/
  SCALE(SAT)=S1 TO S40/
  SCALE(IA)=I1 TO I5/
  SCALE(SA)=S1 TO S5/

```

```

SCALE(TB)=I6 TO I12/
SCALE(SB)=S6 TO S12/
SCALE(IC)=I13 TO I18/
SCALE(SC)=S13 TO S18/
SCALE(IMD)=I19 TO I22/
SCALE(SD)=S19 TO S22/
SCALE(IE)=I23 TO I24/
SCALE(SE)=S23 TO S24/
SCALE(IF)=I25 TO I29/
SCALE(SF)=S25 TO S29/
SCALE(IG)=I30 TO I33/
SCALE(SG)=S30 TO S33/
SCALE(IH)=I34 TO I40/
SCALE(SH)=S34 TO S40
OPTION 1
STATISTICS 9
PEARSON CORR AGE EY PY WITH IA TO SH
OPTIONS 3
RECODE AGE(21 THRU 29=1) (29 THRU 35=2) (35 THRU 40=3) (40 THRU 64=4)
RECODE EY(1 THRU 5=1) (5 THRU 9=2) (9 THRU 14=3) (14 THRU 35=4)
RECODE PY(1 THRU 5=1) (5 THRU 31=2)
RECODE TI(0 THRU 2=1) (2 THRU 5=2) (5 THRU 37=3)
RECODE SU(1 THRU 2=1) (2 THRU 4=2)
CROSSTABS GR AR AGE EY PY BY TI SU
STATISTICS 1
OPTIONS 3 4 14
CROSSTABS PO SEX BY SU / SEX BY PO / AGE BY EY PY
STATISTICS 1
OPTIONS 3 4 14
CROSSTABS VARIABLES=GR(1,3) AR (1,3) SEX(1,2) ED(3,4)/
TABLES=GR AR SEX BY ED
STATISTICS 1
OPTIONS 3 4 14
T-TEST GROUPS=SU(1,2)/VARS= AGE EY PY
T-TEST GROUPS=SEX(1,2)/VARS=IA TO SH
T-TEST GROUPS=ED(3,4)/VARS=IA TO SH
T-TEST GROUPS=PY(1,2)/VARS=IA TO SH
ONEWAY IA TO SH BY GR(1,3)/
RANGES=TUKEY/
RANGES=SCHEFFE/
STATISTICS 1
ONEWAY IA TO SH BY AR(1,3)/
RANGES=TUKEY/
RANGES=SCHEFFE/
STATISTICS 1
ONEWAY IA TO SH BY AGE(1,4)/
RANGES=TUKEY/
RANGES=SCHEFFE/
STATISTICS 1
ONEWAY IA TO SH BY PO(1,4)/
RANGES=TUKEY/
RANGES=SCHEFFE/
STATISTICS 1
ONEWAY IA TO SH BY EY(1,4)/
RANGES=TUKEY/
RANGES=SCHEFFE/
STATISTICS 1
FINISH

```

APPENDIX E. HUMAN SUBJECTS IN RESEARCH APPROVAL FROM
IOWA STATE UNIVERSITY

