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**Production and Evaluation of an Instructional Videotape on
Rice - Fish Culture in the Northeast of Thailand**

Urai Akkapoo

**A Thesis
in
The Department
of
Education**

**Presented in Partial Fulfillment of the Requirements
for the Degree of Master of Arts at
Concordia University
Montreal, Quebec, Canada**

November 1990

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ABSTRACT

Production and Evaluation of an Instructional Videotape on Rice - Fish Culture in the Northeast of Thailand

Urai Akkapoo

The purpose of this thesis was to design and evaluate a videotape on rice - fish culture in the Northeast of Thailand as to its effectiveness as training material for Thai Northeast farmers. During the production, formative evaluation was conducted in order to improve the quality of the tape. This was undertaken with an expert appraisal, one - to - one, and small group testing. A one group pretest - posttest design was used for summatively evaluating the production. The field trial included a total of 51 farmers from 5 villages in the rural area of the Northeast of Thailand who were pretested, shown a 16 : 38 minute videotape and then immediately given a posttest in order to assess the cognitive and affective impact of the program. A highly significant difference in cognitive gain due to the program was found and the respondents' positive attitudes towards rice - fish culture increased. The study supports the rationale for increasing the use of video in development internationally, and provides a model for fisheries training in rural Thailand.

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Chapter I

Introduction

The problems of the Northeast, in many respects, are the same as those of Thailand as a whole and they are identical with those of many developing countries. The difference is that in the Northeast these problems are accentuated. Agricultural land is the principal resource and 93 per cent of the economically active population derives its livelihood from agriculture. Except where conditions are favorable for mechanization, no country can expect to reach a high degree of prosperity as long as the economy remains primarily agrarian. While industrial development in Thailand is making satisfactory progress, the rural population shares little in the benefits and the gap in the standard of living between rural and urban population is broadening.

Scarcity of natural resources is the principal reason why the Northeast has not reached the same degree of development as have other regions in Thailand. Deficient soils coupled with rainfall dependent agriculture have also kept the Northeast the poorest region with below average nutrition levels and income. The net income of the farmers is small, yet in some areas the people are as well off as in other regions. Considering the Northeast as a whole, population pressure has not yet become an acute problem, but the decreasing fertility of the land in combination with a rapid increase in population could cause the Northeast to become a truly depressed area in a decade.

Recognizing the serious problems facing people in the Northeast, the government of Thailand has sponsored a number of development initiatives. One of the most important projects is increasing the production of fish. Increase in population, overfishing, environmental pollution, irrigation demands, and the disappearance of wetlands have all contributed to the decline of natural fisheries. Fish culture has been practiced in the region for a number of years, but the scale so far has been small and the Northeast continues to import one - third of its supplies, mostly marine fish, but the per capita protein consumption remains at about one - third of the national average.

To help increase the amount of fish consumption and to create income - earning opportunities simultaneously, the Department of Fisheries is encouraging farmers to raise fish in their rice fields. Fish rearing is not new for the farmers but they can benefit greatly by being aware of new techniques. Besides, fish have traditionally been the major source of protein and are cheaper than any other kind of meat food. Therefore, the Department of Fisheries has set a training and extension program for the farmers at each field station in the Northeast (Please see Figure 1). Through rice - fish culture, fish rearing can be easily integrated into farmers' existing fields with a low risk, economical investment but produce a significant yield of rice and fish.

Purpose of the Thesis

The purpose of this thesis is to design and evaluate videotape components for video packaging of rice - fish culture as a training tool to be used by extension workers in order to effectively delivery knowledge and know - how of appropriate fish culture techniques, to create positive attitudes, and to encourage the northeast farmers to raise fish. Thus, great benefits, in terms of opportunities for increasing fish production and a chance to improving the standard of living and income, will be provided to the farmers; and a diversification of rural development will be encouraged.

Rationale of the Thesis

Since fisheries and agricultural technologies have been progressing, the need to develop improved mechanisms and tools for the communication of technology transfer from the subject matter specialists to farmers has also significantly increased. The bridge between a biologist and a farmer is an extension worker who works closely with farmers. However, this person has encountered many problems such as transportation difficulty, lack of extension tools and equipment, a large number of farmers to be served and so on. And with regard to video per se, Coldevin (1988) reviewed many international development projects and found the factors which have caused failure in technology transfer are the absence of : (a) a clear idea of how, for whom, and to what purpose video will be used; (b) a training program for personnel using the equipment; and (c) planning

for integrating its use into a systematic methodology for rural training and information gathering and dissemination. Therefore, this thesis is aimed at developing the quality of video - based training materials in order to facilitate the successful transfer and application of expanding technology to meet the needs of end - users.

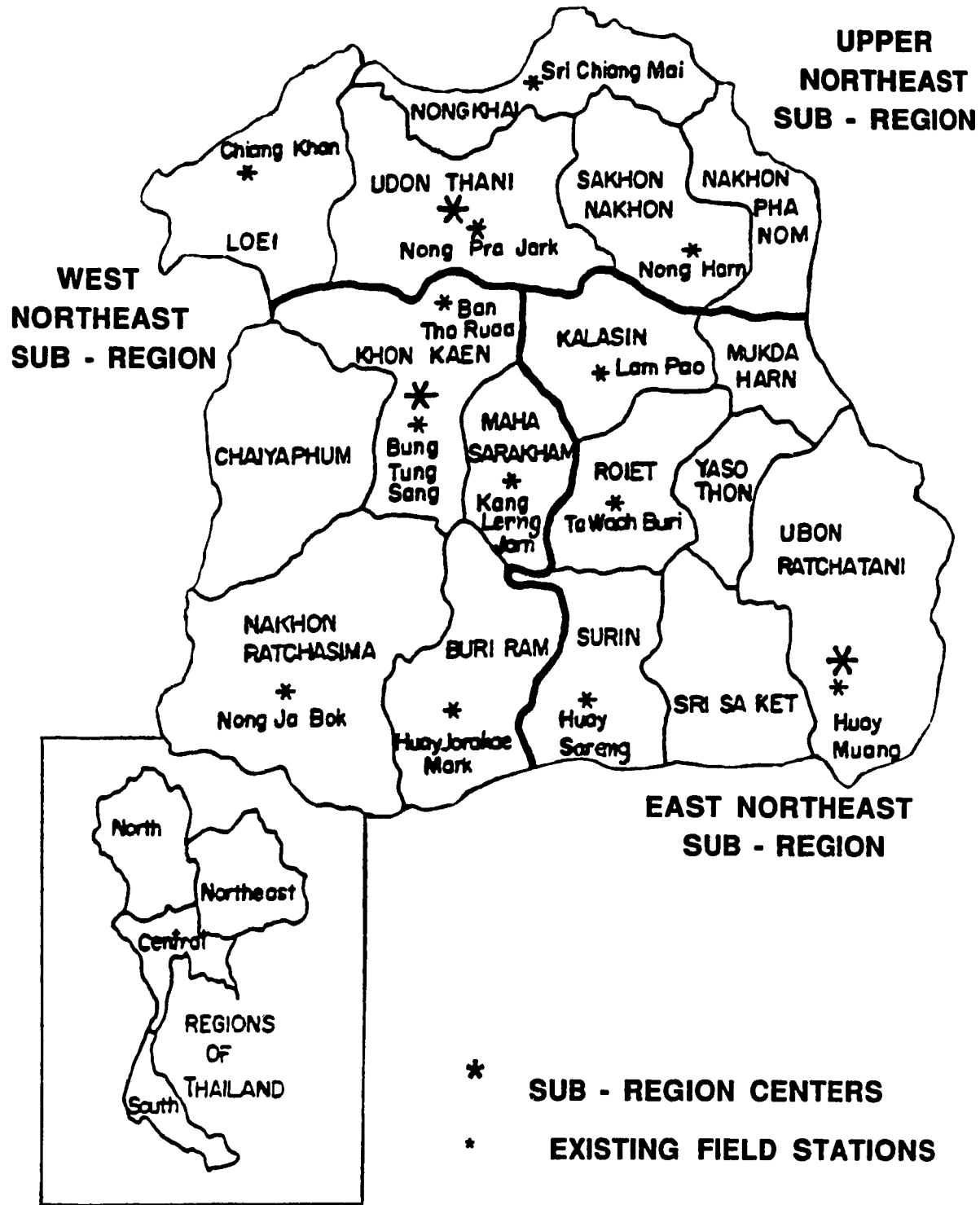


Figure 1 : Distribution of existing DOF field stations in Northeast Thailand by sub - regions.

Chapter II

Review of Related Literature

Development support communication, in particular video based materials application, has played an increasing important role in rural development (Coldevin, 1988, p.225). While access to the medium has increased dramatically because of technical refinements, the technology can be employed successfully in developing countries if programs are adequately planned and carefully implemented. Many U.N. development projects done by UNDP, UNICEF, FAO and other international development agencies have proved that video is a versatile medium to support rural development. Although constraints have been encountered, video can be effectively used for (1) participatory community development, (2) horizontal and vertical communication, (3) monitoring and evaluation, and (4) training and social animation (Coldevin, 1988; Bessette & Tighe, 1988). Moreover, video can help rural people communicate and possibly solve their development problems, if they participate in its production and use (Anderson, 1988).

An instructional video program can also be a televised program. Freire (1972) commented, "Broadcast T.V. may never find it profitable to focus on the effect of rural poverty on the overall development of society. But participatory locally distributed video may help rural inhabitants set their own agenda and use the power of the communication media to deal critically and creatively with reality and

discover how to participate in the transformation of their world (p. 152)".

Several studies on the cognitive and affective impacts of instructional materials have been done in order to describe many ways of interacting with audiences. For example, Huston et al. (1981) have shown that stimulation of the affective domain is the primary reason for audiences watching a particular program. Copeland (1988) claimed that the effects of adjusting the elements within a given medium such as the structure, the pace, and the presentation itself could influence the level of learner success. Brody (1984) and Simonson et al. (1987) also gave a definite, positive conclusion that the use of video programs can contribute to the increased learning. And Peterson and Clark (1988) found evidence to conclude that the use of video assisted instruction increased long term positive student attitudes toward the subjects students were taking.

Smith and Baggaley (1980) found that film gained a high rate of positive feedback from audiences. Moreover, Morris (1984) and Kemp & Dayton (1985) showed that the variables relating to motion picture design and production factors including presentation format, camera angles, use of color, special effects, narration, and music affected learners' responses in terms of achievement and delayed recall of the material. Bernard and Coldevin (1982) also studied factors which influence the recall and retention of news story content and found that recaps significantly directed viewer attention to relevant news stories.

The foregoing research has consistently demonstrated that video can be a powerful instructional tool in a variety of contexts. This thesis equivalent intends to validate its use as a training vehicle in a rural situation in Northeast Thailand.

Chapter III

Material Production and Evaluation Design

Description of the Instructional Material

Specifications

- Title** : Rice - Fish Culture in the Northeast of Thailand
- Duration** : 16. 38 minutes
- Format** : Videotape (PAL), the master tape was made in U -
Matics (3/4 inch) and dubbed into VHS (1/2 inch)
for the formative evaluation and distribution.
- Sponsor** : The Department of Fisheries, Ministry of
Agriculture & Cooperatives, Bangkok, Thailand

Rice - fish culture is one practice which concentrates on ways of improving productivity through the use of farmers own resources. Rice is the major crop grown by the Northeast Thai farmers, most of whom are poor. The fact that most rice cultivation requires some degree of flooding makes the simultaneous culture of fish worth considering. Besides, rice - fish culture has compared favorably with rice - only cultivation in terms of relative benefit to farmers. The only extra financial investment needed for the practice is the cost of fish seed; this makes the practice still more attractive at the outset. Moreover, the practice demands relatively minor modifications to systems with

which the farmers are very familiar and further assures that it is low - risk.

Since it takes about 6 - 8 months to complete the whole system of rice - fish culture and there were also time and man - power constraints, a needs assessment was therefore done prior to the beginning of the production through investigating the existing materials in the Department of Fisheries such as finished videotapes, production and distribution reports, stock shots and so on. It was found that most of the existing videotapes were produced as parts of the training modules which containing some steps of the culture i.e. a motivational tape which was the interview of a successful farmer in raising fish in his rice - field, artificial fish breeding, fish seed nursery, etc. . None of them had completed the whole system of rice - fish culture. Moreover, after discussions and consultations with the subject matter experts (fishery biologists), the users (extension officers), including the investigation of the target audiences feedback, there was a requirement for completing the steps of the culture : site selection, pond preparation, nursery, husbandry, and harvesting. Therefore, this videotape was designed to have all steps of rice - fish culture and provide sufficient information and details.

Goal of the Instructional Material

The goal of the videotape on rice - fish culture is to effectively delivery knowledge of appropriate fish culture techniques, create positive attitudes, and encourage the Northeast farmers to raise fish so

that they will be able to improve their standard of living and income successfully.

Objectives of the Instructional Material

After viewing the videotape regarding rice - fish culture, the target population will be able :

- 1) to understand the concept of rice - fish culture;
- 2) to explain how to raise fish;
- 3) to apply the knowledge and know - how to their rice- fish rearing efficiently and effectively; and
- 4) to accept the worth of rice - fish culture.

After the needs assessment, the specific objectives were framed according to the rice - fish culture subject content, in order to facilitate designing the program and constructing of the testing instruments for determining the effectiveness and efficiency of the program. Statistically significant differences were set at $p < .05$.

Outline of the Content and Format

Since the target audiences were Northeast farmers who had low literacy skills, the story was therefore narrated in the Northeast dialect and the difficult vocabulary words were avoided in order to make it not too hard for them to understand.

Because of the folkways of the Northeast people, they do not like serious subjects. The Northeast folk music was used as the sound effect at the beginning in order to motivate them to follow the story

without being bored. Moreover, a typical dance of rice - fish culture performed by the primary school students was also included to introduce rice - fish culture and its advantages to the audiences. The steps of the culture then followed. Finally, a wrap up of ideas and encouragement for them to start raising fish to increase their income and improve their lives was used for the conclusion. Again, the music which was specially composed for the purpose of rice - fish culture promotion was accompanied with credits superimposed over the montages. An outline of the content and format follows:

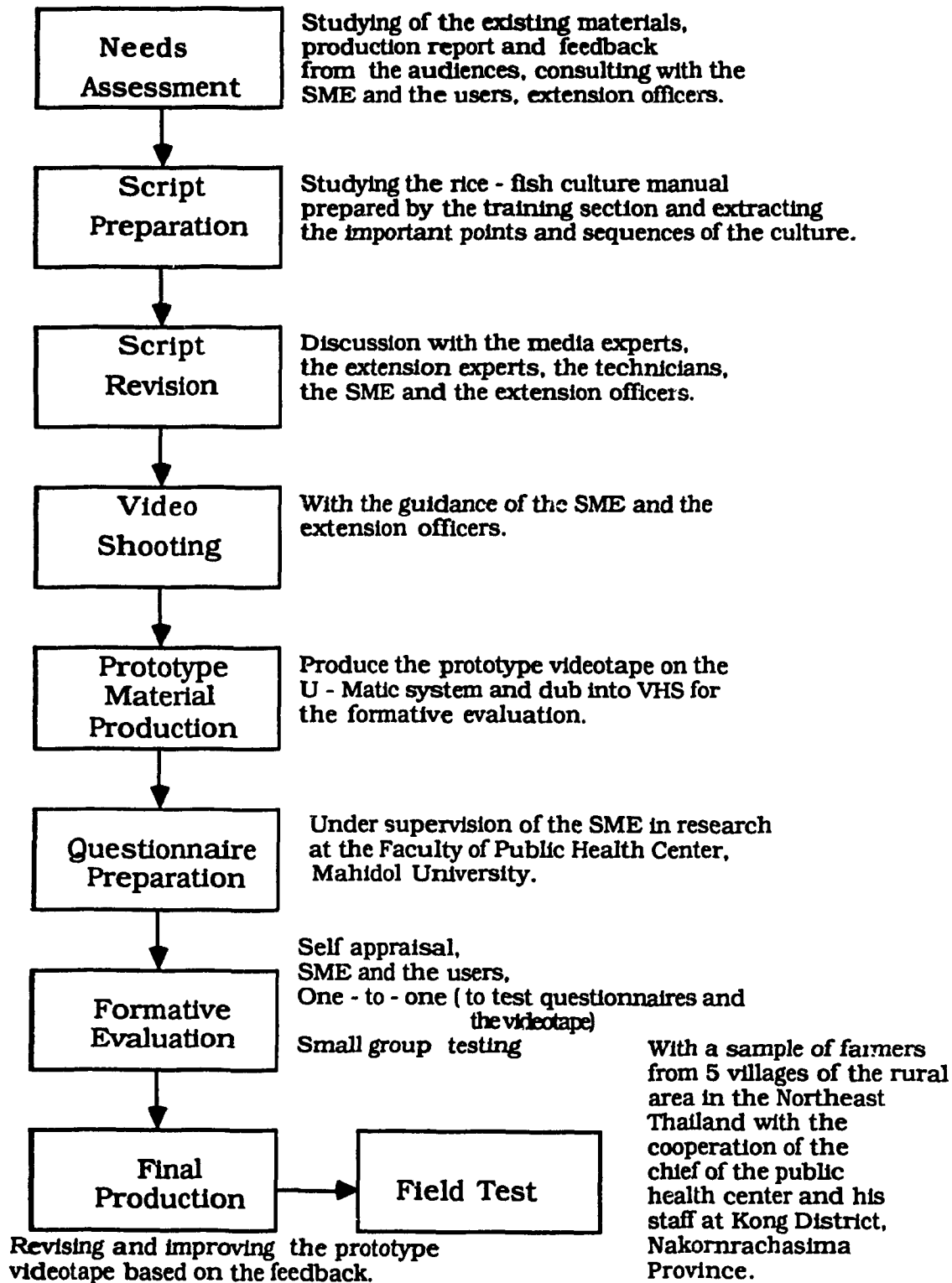
1. Introduction to the problem of scarcity of food from the natural sources
2. Advantages of rice - fish culture
3. Motivation by giving the audiences a real example of a successful farmer who grew rice - fish culture and an interview (voice - over the visuals of his working)
- 4 Basic steps of rice - fish culture :
 - 4.1. Site selection
 - 4.2. Pond preparation
 - 4.3. Activating natural food in the raising plot by liming and fertilization.
 - 4.4. Fish stocking
 - 4.5. Nursery
 - 4.6. Husbandry (food and feeding, care and maintenance etc.)
 - 4.7. Harvesting
5. Conclude by wrapping up ideas of the advantages of rice - fish culture and encourage them to start growing fish in the rice-

fields.

Production and Evaluation Design

Figure 2 illustrates the production and evaluation design. After a needs assessment, the script (Appendix A) was drafted and revised under the supervision of the media experts, the extension experts, the technicians (A/V staffs) the SME and the extension officers in the Department of Fisheries. The contents were extracted from the culture manual prepared by the Training Section. The footage was shot in the Northeast Region with the guidance of the SME and the extension officers of the Kalasin Freshwater Fishery Station. All the production equipment was provided by the Department of Fisheries. After finishing the prototype videotape which was produced on the U - Matic system, the testing copy was dubbed into VHS for the formative evaluation. Under the supervision of the SME in research at the Department of Bio- Statistics, Faculty of Public Health, Mahidol University, the pretest and posttest instruments for measuring the target audiences' attitudes and cognitive achievement, including the information eliciting, were prepared. Besides self - appraisal, the formative evaluation was conducted with an SME and the users, one - to - one, and small group testing. Then, the prototype videotape was developed based on the feedback from the people mentioned. Finally, the field test was administered with the sample of the target audiences in the Northeast with the collaboration of the chief of the Public Health Center and his staff in Kong District, Nakornrachasima Province, Thailand.

Figure 2 : Production and Evaluation Design



Chapter IV

Methodology

Formative Evaluation

Goal of the Formative Evaluation

After finishing the prototype production, a formative evaluation was conducted in order to improve the program while it was being developed to make it as effective as possible. This ensured that certain directions were followed in order to yield a very good production without risk of wasting money, time and effort.

Objectives of the Formative Evaluation

In order to achieve the goal, the objectives of the evaluation were formulated as follows :

- 1) to determine the accuracy and the timeliness of the video;
- 2) to detect the errors in the program in terms of language used, level of interest and technical quality; and
- 3) to determine the effectiveness of the content on a sample of the target population.

More specifically, the evaluation was concentrated on the following:

- 1) Message design
 - Appropriateness of content
 - Clarity of the content
 - Accuracy of the content

- Density of the content
 - Interest level of sequences
- 2) Technical quality
- Pacing of visual content
 - Lighting
 - Editing
 - Appropriateness of music or sound effects
 - Appropriateness of graphics and special effects
- 3) Cognitive achievement of audience
- 4) Affective domain impact

The effectiveness and the efficiency of the program in terms of cognitive achievement were determined based on statistically significant differences ($p < .05$). Moreover, demographical information relating to age , sex, marital status, academic level, and agricultural experience agricultural space ownerships and renting, annual income and so on which might effect the target population's attitudes and achievement was also examined. Such demographical information was very important because it proved useful in determining the degree of representativeness of the sample from the target population and also in deciding upon the target population for the product evaluation at the micro level.

Stages of Evaluation

In order to ensure the accuracy of information and data that were collected, the evaluation was done in 4 stages : expert appraisal, one -

to - one testing, small group testing and field testing (Dick & Carey, 1985).

Expert Appraisal

The rough edited videotape on Rice - Fish Culture was reviewed by a subject matter expert, by media experts, extension officers and A/V staff in order to judge those factors which failed within their area of expertise. The subject matter expert, who was the chief of the Kalasin Freshwater Fishery Station, gave some comments on the organizing of the story including instructional sequence, clarity, completeness and accuracy of the content. Motivational strategy and presentation techniques were advised by media experts. The appropriate narrative words and the instructional strategy were also suggested by extension officers. In order to ensure the instructional material quality, the videotape was screened to the A/V staff in order to judge the technical factors such as picture selection, pacing of visual content, lighting, editing, audio level and special effects. After this step, the videotape was not revised but the gathered information from this step was used with the one - to - one testing outcome to develop the videotape.

One - to - One Testing

In one - to - one testing, the prototype videotape was tested individually with 2 farmers who were representatives of the target population to find major problems which might result in revision and changing the instructional strategy or overall organization. Their reaction toward the videotape and the testing instrument were

observed in order to investigate the appropriateness of test directions, questions, test situation and the appropriateness of the videotape in terms of narration, duration of the tape, density, clarity, interest sequence, currency and accuracy of the content.

Small Group Testing

After finishing the one - to - one testing, the material was revised and improved based on the feedback from the one - to - one testing and the expert appraisal. Then, it was tested again with 10 farmers who represented the target population. The testing was begun by explaining that the videotape was still in the formative stage and the result of this evaluation would be used to improve its effectiveness and efficiency. The small group testing was conducted as a field trial by the developer and the extension officer in a small village hall. The farmers were pretested, then the posttest was administered immediately after viewing the tape.

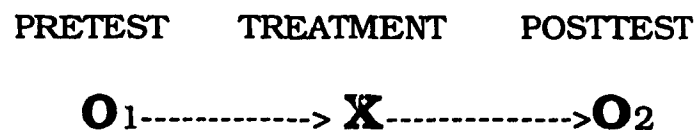
Field Testing

The videotape was improved based on the feedback from the small group testing. Finally, it was tested with 51 farmers, the sample from the population intended as its audience. With this larger group, a pretest and a posttest revised on the basis of small group testing were given. The field test was designed to be a critical test of the program, its feasibility of use, and its effectiveness (Gange et al., 1988).

Evaluation Design

The design employed for the one - to one, small group, and field testing evaluation was adapted from a research design called "the One - Group Pretest - Posttest Design" (Campbell & Stanley, 1966, p.7)

It consisted of pretesting and then posttesting a single group that between the two testings has been exposed to some sort of treatment. Its components are illustrated in the diagram as below :



O₁ indicates the first observation or measurement, pretest.

X indicates the video program to be evaluated or the treatment.

O₂ indicates the second observation or measurement, posttest.

Constraints of the Design

This design is still widely used in educational research and evaluation because of its advantages; however, it has also led to error of misplaced precision since there is no control group and no randomization.

The constraints on this design are the threats to internal and external validity which include history, maturation, testing, instrumentation and mortality (Campbell & Stanley, 1966). However,

with all its problems, it was selected for the formative evaluation on the videotape program by minimizing some of the mentioned threats. The interval between the pretest and the posttest was kept short, to control for history, and maturation : likewise the pretest was not likely to influence learners' posttest performance due to the nature of its interaction with the treatment, hence the threat of testing can be discounted (Popham, 1988). In order to eliminate violating the evaluation's internal validity, two identical tests for the learners' cognitive achievement were employed. Moreover, the posttest was administered immediately after screening the videotape to reduce biasing or cueing of the group. Farmers who participated in the evaluation were carefully selected as representatives of the target population of interest to prevent a selection effect.

Testing Instrumentation

The evaluation design consisted of pretesting and then posttesting a single group. After administering the pretest (Appendix B), the respondents viewed the videotape and then immediately were given the posttest (Appendix C).

Pretest

There were 3 parts of the pretest as follows :

Part 1 was designed to elicit demographic information. There were 11 items relating to name, age, sex, marital status, second career, academic background, household size, number of children,

agricultural space ownerships and renting, and annual income which would be the critical factors for the respondents' decision to grow rice - fish culture. The respondents could select only one answer for each item relevant to themselves.

Part 2 consisted of 6 items to investigate : 1) whether the respondents had already known rice - fish culture before the treatment; 2) to what level they had known rice - fish culture; 3) whether they had fish raising experience; and 4) from which source they had obtained the knowledge of rice - fish culture. As well, a Likert scale which allowed the audience to express their feelings over a five point scale (excellent = 5, good = 4, fair = 3, little = 2, very little = 1), and open - ended questions were employed in order to allow them to answer freely.

Part 3 was constructed in the format of multiple choices. There were 15 items based on each stated objective in the cognitive domain. This was intended to measure the knowledge of the respondents regarding rice - fish culture before viewing the tape. The information collected was used to determine the effectiveness of the program in the cognitive domain by comparing it with the respondents' knowledge gain in the posttest.

Posttest

The posttest consisted of 4 parts as follows :

Part 1 was identical with part 3 in the pretest as already discussed.

Part 2 measured the effectiveness in the affective domain and the impact of the videotape. A Likert scale was employed. The test allowed the audience to express their feelings over a five point scale from 5 to 1 (the most favorable to unfavorable attitudes).

Part 3 was also a five point scale to measure the overall quality of the program's message design variables. The audiences were asked to rate the program on specific points of message design and technical quality variables on a five point numerical scale ranging from excellent = 5 to very poor =1.

Part 4 was to measure the impact of the program on the respondents' decision to grow fish in their rice fields and to find out what were their problems regarding raising fish. These were open comments which were suggesting feedback from the audiences to the staff of the Department of Fisheries.

Sample of Target Population

A random selection of subjects was impossible due to the time constraints. However, since the videotape was designed for general audiences in the Northeast Thailand, the subjects were carefully selected from 5 villages of Kong District, Nakornrachasima Province which is considered as one of the most poverty prone rural areas of the country. It is a rainfed area, and cultivation depends upon uncertain rainfalls. As a result, annual income is very low.

Since the Northeast region is bounded by Laos, the population in

this area speaks its own dialect with a Thai - Laos accent. Most of the sample had low literacy skills. Some (24%) had finished primary school but had limited further formal education due to the economic constraints. While having their main occupation as farmers, some of them had another career or supplementary occupation as hired workers. The details of some selected demographic characteristics of the sample appear in Table 1.

Table 1 : Frequency and Percentage of Selected Demographics of the Sample

Characteristics	n	Percentage
	n=51	100
Age (year)		
< 30	8	15.7
30 - 39	21	41.2
40 - 49	13	25.5
≥ 50	9	17.6
Sex		
Female	28	54.9
Male	23	45.1
Marital Status		
Married	51	100
Second Career		
Yes	34	66.7
No	17	33.3
Education		
≤ Compulsory (Primary School)	39	76.5
> Compulsory	12	23.5
Household Size		
3 - 4	20	39.2
5 - 6	22	43.1
≥ 7	9	17.6
*National Mean = 5.10 (National Statistics Bureau, 1989)		
Number of Children		
1 - 2	22	43.1
3 - 4	23	45.1
≥ 5	6	11.8
*National Mean = 2.84		
Ownerships of Agricultural Space		
Yes	42	82.4
No	9	17.6
Renting of Paddy Field		
Yes	12	23.5
No	39	76.5
Annual Income (Cdn. \$ ≈ 20.51 Baht; GNP ≈ 50,400 Baht)		
< 20,000 Baht	35	68.6
≥ 20,000 Baht	16	31.4

The 10 questionnaires eliciting demographic characteristics ranged from age to annual income of the participants. Out of a total of 51 respondents from 5 villages in the rural area of the Northeast of Thailand, they included 28 female (54.9%) and 23 male (45.1%), the latter of whom were generally chiefs of the family. All members of the sample were married.

Their age ranged between 20 and 60 years old, and were categorized into 4 groups :

- a) less than 30;
- b) 30 - 39;
- c) 40 - 49; and
- d) 50 or more than.

However, the largest percentage of the sample (41.2%) fell within the 30 - 39 age range; 25.5% were 40 - 49 years old, 17.6% were more than 50 years old, and 15.7% were less than 30 years old. The mean of the sample age was 40.

Besides having an occupation as a farmer, 66.7 % of the respondents reported that they also had another career, generally as hired workers. Twenty Four percent reported that they had education higher than compulsory education (primary school). The average family number or household size was 5.33 (S.D. = 1.60) which was close to the national mean of 5.10 (The National Statistics Bureau, 1989).

Generally, 45.1% had 3 - 4 children; 43.1% had 1 - 2 children and 11.8% had more than 4 children (S.D. = 1.99). The mean number of children (3.23) was more than the national mean of 2.84 (The National Statistics Bureau, 1989).

Eighteen percent of the participants did not own agricultural land. However, 23.5%% rented agricultural space, of which 5.9% had their own paddy fields; the rest did not own a paddy field. Sixty - nine percent had annuals income less than 20,000 Baht (Cdn. \$ \approx 20.51 Baht). The average annual income was 22,249.81 Baht (S.D. = 20,219.71) which was less than the GNP/capita of approximately 50,400 Baht (Note : The population of the studied area had average incomes lower than every other regions of the country).

Procedure

The evaluation of the videotape was conducted from 9 to 11 a. m., on the 20th June 1990, at the Public Health Center in Kong District, Nakornrachasima Province with the collaboration of the chief of the center and his 17 member staff. First of all, the 51 participants gathered in a big meeting room which was arranged for the informal interviewing. The chief greeted the group and explained the aims and objectives of the evaluation to the participants in order to make them feel comfortable and relaxed. Then, they were asked to respond to the questionnaires of the pretest, which were individually administered by the well - trained Public Health staff in the ratio of 1 : 3. In eliciting information from the subjects with low literacy skills, interviews were

preferably used because they are flexible and adaptable; responses can probed, followed up, classified, and elaborated to achieve specific, accurate responses (McMillian & Schumacher, 1984). The first group of 25 respondents who had already answered the pretest were separated in another room for viewing the 16 : 38 minute videotape on Rice - Fish Culture while the rest of them were being interviewed in the meeting room. After viewing the videotape, they went back to the meeting room in order to do the posttest immediately while the second group took its turn to view the tape. This procedure prevented any discussion among them regarding the program. Finally, refreshments were given to the participants and the staff in appreciation of their great cooperation.

Chapter V

Results

Analysis of Data

1. Background Knowledge of Rice - Fish Culture Before Viewing the Videotape Segmented According to Demographic Variable

The results in Table 2 reveal that 37.3% of the sample already knew about Rice -Fish Culture before viewing the videotape. According to the demographic variables, the details were categorized as follows :

Age

The portion of the sample who had known rice - fish culture was younger than 40 years old (25.5%) and 11.7% were older than 40 years old.

This suggests that the younger population were eager to increase their knowledge and interested in having another career for earning more income than the older population.

Sex

It was found that the number of female with background knowledge of rice - fish culture was 31.4%; and 5.9% were males. It is interesting that more women are now participating in social activities and playing more of a role in family affairs.

Supplementary Occupation

Thirty - one percent of the sample who had supplementary occupations had more background knowledge of rice - fish culture than the portion of those who did not (5.9%). This indicates that those who had supplementary careers tended to be eager to acquire knowledge in order to increase incomes.

Education Background

It was found that the portion of the sample who were less educated or completed compulsory education knew more rice - fish culture than those who were better educated. The proportions were 31.4% and 5.9% respectively.

Perhaps, the population who were better educated could apply their knowledge for another supplementary occupation such as farm workers from which they could earn more income than cultivating their own farm alone.

Household Size

Respondents whose family size was more than 5 were more knowledgeable about rice - fish culture 19.6%; 17.6% were those whose family size was smaller.

This reveals that those who had larger families would be interested in seeking a supplementary career in order to improve their economic status because of their big burden.

Children Number

The portion of sample who had more than 3 children knew about rice - fish culture 15.7%; 21.6% were those who had less than 3 children.

Agricultural Land Ownerships

The findings revealed that the sample who owned paddy fields knew about rice - fish culture 35.3%; only 2 % did not own paddy fields.

Agricultural Space Renting

Thirty three percent of the sample (with knowledge of rice - fish culture knowledge) did not rent a paddy field and the portion of those who rent paddy fields was 3.9%%.

The variables of land ownership and renting revealed that the population who owned paddy fields were able to practice or experiment with rice - fish culture by themselves in order to fully utilize their own land.

Annual Income

The portion of farmers who had annual incomes less than 20,000 Baht knew more rice - fish culture than the portion of those who earned more than 20,000 Baht per year (25.5%, and 11.8% respectively).

The economic condition was one variable that made farmers more eager to find another supplementary career in order to improve their economic status. Details appear in Table 2.

Table 2 : Background Knowledge of Rice - Fish Culture Before Viewing the Videotape Segmented According to Demographic Variable

	Yes		No		Total	
	#	%	#	%	#	%
	n=19	37.3	32	62.7	51	100
Age						
< 40	13	25.5	16	31.4	29	56.9
≥ 40	6	11.7	16	31.4	22	43.1
Sex						
Female	16	31.4	12	23.5	28	54.9
Male	3	5.9	20	39.2	23	45.1
Second Career						
Yes	16	31.4	18	35.3	34	66.7
No	3	5.9	14	27.4	17	33.3
Education						
≤ Compulsory	16	31.4	23	45.1	39	76.5
> Compulsory	3	5.9	9	17.6	12	23.5
Household Size						
≤ 5	9	17.6	18	35.3	27	52.9
> 5	10	19.6	14	27.5	24	47.1
Number of Children						
≤ 3	11	21.6	22	43.1	33	64.7
> 3	8	15.7	10	19.6	18	35.3
Ownerships of Paddy Field						
Yes	18	35.3	24	47.1	42	82.4
No	1	2.0	8	15.6	9	17.6
Renting of Field						
Yes	2	3.9	10	19.6	12	23.5
No	17	33.3	22	43.1	39	76.5
Annual Income						
< 20,000 Baht	13	25.5	22	43.1	35	68.5
≥ 20,000 Baht	6	11.8	10	19.6	16	31.4

2. Background Variables Associated with the Respondents Who Already Knew About Rice - Fish Culture Before Viewing the Videotape

In order to measure the respondents knowledge before viewing the videotape, a Likert - Scale was used. Of all 19 respondents who had previously known about rice - fish culture, 47.4% knew this culture at a "fair" level (3), and 52.6% had to be improved ($\bar{X} = 2.32$, S.D. = 1.5).

The mean of 2.32 reveals that the respondents' knowledge of rice - fish culture should be improved. This might be due to an inefficient knowledge delivery system for public information.

It was found that of 63.2% of the respondents used to raise fish; 58.4% raised fish in the last season; 33.3% raised fish in the last year, and 8.3% raised fish 2 years ago. However, most of them grew fish in the pond (58.3%) rather than in the rice - field (41.7%).

Most of the respondents gained their knowledge from interpersonal sources (their neighbors and staff of the Department of Fisheries) and other media such as T.V., radio, etc. equally at 42.1% for each. However, 31.6% studied by themselves and 10.5% received their knowledge from the community leaders. Details appear in Table 3.

**Table 3 : Background Variables Associated with the Respondents Who
Already Knew About Rice - Fish Culture Before Viewing the
Videotape**

	n	Percentage
<u>Already known rice - fish culture</u>	19	100
<u>Level of Knowledge (Likert Scale)</u>		
Fair (3)	9	47.4
To be improved (2 & 1)	10	52.6
	($\bar{X} = 2.32$; SD = 1.15)	
<u>Used to raised fish before</u>		
Yes	12	63.2
No	7	36.8
<u>The last fish raising</u>		
Last season	7	58.4
Last year (1 year ago)	4	33.3
2 years ago	1	8.3
<u>Raising ground</u>		
Pond	7	58.3
Paddy Field	5	41.7
<u>Source of knowledge (can answer more than one answer)</u>		
Study by him/herself	6	31.6
Neighbor	8	42.1
DOF Staff	8	42.1
Media (T.V., radio, etc.)	8	42.1
Community Leader	2	10.5

3. Pretest of Cognitive Achievement

The cognitive achievement data of the pretest were analyzed according to the demographic characteristics as shown in Table 4. It was found that age, household size, number of children, agricultural ownership, field renting and annual income do not effect the respondents' cognitive level before the treatment. However, sex, supplementary career and education affected cognitive achievement. Males scored higher than females ($p < .05$). Those who had supplementary careers scored higher than those who did not ($p < .05$); and respondents who were better educated scored higher than ones who had only compulsory education ($p < .05$).

These findings concerning education and income with knowledge levels are consistent with those noted by Coldevin (1986) in study of West African rice farmers.

Table 4. : Pretest of Cognitive Achievement

	n = 51	\bar{X}	SD	df	t - Test
Age					
< 40	29	7.38	2.54	49	0.16
≥ 40	22	7.27	2.45		
Sex					
Female	28	6.75	2.35	49	1.88*
Male	23	8.04	2.50		
Second Career					
No	17	6.59	2.00	49	1.69*
Yes	34	7.71	2.63		
Education					
≤ Compulsory	39	6.82	2.23	49	2.63*
> Compulsory	12	9.00	2.59		
Household Size					
≤ 5	27	7.73	2.60	49	1.17
> 5	24	6.92	2.33		
Number of Children					
≤ 3	33	7.62	2.61	49	1.25
> 3	18	6.76	2.17		
Ownerships of Paddy Field					
Yes	42	7.29	2.54	49	0.34
No	9	7.56	2.07		
Renting of Field					
Yes	12	7.00	2.04	49	0.52
No	39	7.37	2.45		
Annual Income					
< 20,000 Baht	35	7.09	2.34	49	1.02
≥ 20,000 Baht	16	7.86	2.39		

* p < .05

4. Comparison of Cognitive Achievement Before and After Viewing the Videotape (Pretest and Posttest)

According to the comparison of the respondents' cognitive achievement before and after the treatment, the average cognitive achievement of the sample before viewing the tape was 7.33 which was lower than the mid point of the total marks (15 points). However, their average achievement after viewing the tape increased to 10.04 which was still unsatisfactory; this suggests that this videotape needs careful explanation before screening and perhaps follow - up reinforcement. The Paired t - Test used to analyze the results indicated that there was a highly significant difference ($p < .001$) in cognitive achievement due to the treatment. Details appear in Table 5.

Table 5 : Comparison of Cognitive Achievement Before and After Viewing the Videotape (Pretest - Posttest)

Pretest \bar{X}	Posttest \bar{X}	df	t - value
7.33	10.04	50	10.77*

* $p < .001$

5. Posttest of Cognitive Achievement

Table 6 illustrates the respondents' cognitive results of the posttest. The results showed that every demographic variable studied except the second career variable ($p < .05$) did not have any effect on the cognitive achievement. This suggests that the tape was appropriate to the sample group which had wide variability in the studied demographics. In other words, the videotape on Rice - Fish Culture could be used suitably with many groups of target population with different demographic characteristics. Details appear in Table 6.

Table 6 : Posttest of Cognitive Achievement

	n	\bar{X}	SD	df	t -Test
Age					
< 40	29	10.24	2.36	49	0.74
≥ 40	22	9.77	2.14		
Sex					
Female	28	10.11	2.30	49	0.22
Male	23	9.96	2.45		
Second Career					
No	17	9.18	2.07	49	2.04*
Yes	34	10.47	2.25		
Education					
≤ Compulsory	39	9.74	2.15	49	1.62
> Compulsory	12	11.00	2.41		
Household Size					
≤ 5	27	10.27	2.35	49	0.67
> 5	24	9.84	2.21		
Number of Children					
≤ 3	33	10.32	2.24	49	1.28
> 3	18	9.47	2.24		
Ownerships of Paddy Field					
Yes	42	10.07	2.26	49	0.21
No	9	9.89	2.37		
Renting of Paddy Field					
Yes	12	9.42	2.15	49	0.99
No	39	10.13	2.19		
Annual Income					
< 20,000 Baht	35	9.63	2.17	49	0.51
≥ 20,000 Baht	16	10.71	2.31		

* p < .05

6. Comparison of Cognitive Gain

When analyzing cognitive gain with demographic characteristics, it was found that there were no significant difference in cognitive achievement relating to every studied demographic variable except for sex. Females scored 76% higher than males ($p < .05$). See Table 7.

Table 7 : Comparison of Cognitive Gain

	n	\bar{X}	SD	df	t - Test
<u>Age</u>					
< 40	29	2.86	1.81	49	0.71
≥ 40	22	2.50	1.79		
<u>Sex</u>					
Female	28	3.36	1.73	49	3.21*
Male	23	1.91	1.56		
<u>Second Career</u>					
No	17	2.59	2.00	49	0.30
Yes	34	2.76	1.71		
<u>Education</u>					
≤ Compulsory	39	2.92	1.77	49	1.58
> Compulsory	12	2.00	1.76		
<u>Household Size</u>					
≤ 5	27	2.54	1.94	49	0.69
> 5	24	2.8	1.64		
<u>Number of Children</u>					
≤ 3	33	2.71	1.93	49	0.02
> 3	18	2.72	1.53		
<u>Ownerships of Paddy Field</u>					
Yes	42	2.79	2.15	49	0.60
No	9	2.33	2.06		
<u>Renting of Paddy Field</u>					
Yes	12	2.42	1.73	49	0.59
No	39	2.76	1.83		
<u>Annual Income</u>					
< 20,000 Baht	35	2.54	1.95	49	0.51
≥ 20,000 Baht	16	2.86	2.01		

* p < .05

7. Paired T - Tests of Cognitive Gain Segmented by Demographic Variable

From the results of the paired t - tests of cognitive gain segmented within levels of selected demographic characteristics, the results revealed that every variable ranging from age to annual income produced significant differences (Table 8). This again confirms the value of the videotape across a variety of viewing groups.

**Table 8 : Paired T - Tests of Cognitive Gain Segmented by
Demographic Variable**

	n	\bar{X}	SD	df	t -Test
<u>Gain</u>	51	2.71	1.79	50	10.77**
<u>Age</u>					
< 40	29	2.86	1.81	28	8.51**
≥ 40	22	2.50	1.79	21	6.55**
<u>Sex</u>					
Female	28	3.36	1.91	27	10.28**
Male	23	1.73	1.56	22	5.87**
<u>Second Career</u>					
No	17	2.59	2.76	16	5.34**
Yes	34	2.00	1.71	33	9.41**
<u>Education</u>					
≤ Compulsory	39	2.92	2.00	38	10.30**
> Compulsory	12	1.77	1.76	11	3.94*
<u>Household Size</u>					
≤ 5	27	2.54	2.88	26	6.68**
> 5	24	1.94	1.64	23	8.78**
<u>Number of Children</u>					
≤ 3	33	2.71	2.72	32	8.19**
> 3	18	1.93	1.53	17	7.33**
<u>Ownerships of Paddy Field</u>					
Yes	42	2.79	2.33	41	8.40**
No	9	2.15	2.06	8	10.18**
<u>Renting of Paddy Field</u>					
Yes	12	2.42	2.76	11	4.85**
No	39	1.73	1.83	38	9.30**
<u>Annual Income</u>					
< 20,000 Baht	35	2.54	2.86	34	7.71**
≥ 20,000 Baht	16	1.95	2.01	15	5.32**

* p < .05

** p < .001

8. The Technical Quality of the Videotape

Table 9 shows the results of the means of the 5 point Likert - Scale for technical quality of the videotape. The critical mean was set at 3.5. The quality of the videotape in all items is good ($\bar{X} > 3.5$). It is obvious that the items such as accuracy of content ($\bar{X} = 3.8$), appropriate pictures ($\bar{X} = 3.77$), focus of the pictures ($\bar{X} = 3.81$) and appropriate music or sound effects ($\bar{X} = 3.75$) were particularly well rated because their means were > 3.75 . Moreover, the results also indicated the overall assessment of the program was very good ($\bar{X} = 3.81$).

Table 9 : Means of 5 Point Likert - Scale for the Technical Quality of the Videotape

Quality/Techniques of Videotape	\bar{X}	SD
1. Appropriate length	3.69	0.77
2. Clarity of Content	3.69	0.77
3. Accuracy of Content	3.80*	0.74
4. Appropriate Density of Content	3.51	0.68
5. Interest Level of Sequences	3.71	0.74
6. Pacing of Each Visual Content	3.55	0.73
7. Continuity	3.58	0.71
8. Lighting	3.61	0.73
9. Editing	3.60	0.76
10. Appropriate Pictures	3.77*	0.72
11. Focus of Pictures	3.81*	0.67
12. Appropriate Music or Sound Effects	3.75*	0.76
13. Clarity of Music	3.74	0.73
14. Appropriate Audio Level	3.56	0.65
15. Overall Assessment of the Program	3.81*	0.73

In experiencing ~~in~~ the one - to - one and the small group trials, the representatives of the target population had low ability to judge production factors. Therefore, before obtaining the videotape technical quality data at the field trial stage, the public health staff were given an explanation about each item in the questionnaires on how to question the farmers; for example, do you think the videotape length was appropriate to the content?, how clear were the pictures?, did you find the content difficult to understand?, was it too much to view?, which level do you want to rate it according to your satisfaction (5, 4, 3, 2, 1) ? The staff spent much more time in eliciting the data. As a matter of fact, the technical quality of the videotape on Rice - Fish Culture was developed based on the results of each step of the formative evaluation in order to make it effective and efficient as much as possible.

9. The Quality of the Videotape According to the Respondents' Attitudes

9.1. According to the respondents' attitudes regarding the videotape quality, the representatives of the target population liked the program very much ($X = 3.88$ which is more than the mid point of the Likert - Scale). Details were shown in Table 10.

Table 10 : Frequency and Percentage of Respondents' Positive Attitudes toward the Videotape

	Frequency	Percentage
Most (5)	11	21.6
Much (4)	24	47.1
Like (3)	15	29.4
A Little (2)	1	2.0
Dislike (1)	-	-

$(\bar{X} = 3.88; SD = 0.77)$

9.2. The reasons that the representatives liked the program very much are summarized in Table 11; 72.5% gave the opinion that they could gain more knowledge by viewing the program.

Table 11 : Frequency and Percentage of Respondents' Reasons for Videotape Rating

	Frequency	Percentage
Get more knowledge	37	72.5
Get correct knowledge	6	11.8
Practical	4	7.8
Useful	5	9.8
Right to the needs	6	11.8
Motivate to raise fish	3	5.9
Appropriate to the living situation of the audiences	2	3.9
Good examples	2	3.9
give enough details	2	3.9

Note : The respondents could answer more than one answer.

9.3. After viewing the program, the respondents reported that their gain in knowledge of rice - fish culture was more than average (\bar{X} = 3.6; S.D. = 0.7). See Table 12.

Table 12 : Frequency and Percentage of Respondents' Knowledge Gain About Rice - Fish Culture After Viewing the Videotape

		Frequency	Percentage
Most	(5)	3	5.9
Much	(4)	28	54.9
Increased	(3)	17	33.3
A little	(2)	3	5.9
Not increased		-	-

$(\bar{X} = 3.61; SD = 0.70)$

9.4. Thirty - nine percent of the respondents reported that they could apply the knowledge from the program to grow fish by themselves (\bar{X} = 3.08; S.D. = 0.93) as shown in Table 13. Although the mean was lower than 3.5, it is still acceptable that the tape was effective for motivation and for creating positive attitudes towards fish culture. However, if the tape was used with other media or training kits for retention, it would certainly be more effective. In the item no.5 of Appendix A, the results show that the medium that they required most was a fishery manual (72.5%) which should be part of future video training materials.

Table 13 : Frequency and Percentage of Respondents' Ability to Apply Knowledge

		Frequency	Percentage
Very much	(5)	1	2.0
Yes	(4)	20	39.2
Yes but need a little help	(3)	13	25.5
Yes but need much help	(2)	16	31.3
Unable	(1)	1	2.0
(\bar{X} = 3.08; SD = 0.93)			

9.5. Ninety - six percent reported that the videotape was useful for increasing their income. This indicates that this medium (videotape) highly motivated the audiences to make their decision to raise fish. Details appear in Table 14.

Table 14 : Frequency and Percentage of Respondents Who Thought That the Videotape on Rice - Fish Culture Will Be Useful to Increase Their Income

	Frequency	Percentage
Yes	49	96.1*
No	2	3.9

10. The Impact of the Program on the Respondents' Decision to Growing Fish

Ninety two percent of the respondents answered that they could apply the knowledge after viewing the program to raise fish and 41.2% would start raising fish in this year. However, they reported that they would have some problems such as money, fish seeds, location, raising procedure and lack of man - power. Please see details in Appendix A.

Sources that the respondents felt would increase their knowledge of rice - fish culture were the personal media : governmental staff and their neighbors (80.4% and 49% respectively). T.V. was mentioned by 49%, radio 39.2%, leaflets 23.5% and newspapers 9.8%. However, the medium that they prefer to receive most is a fishery manual (72.5%). Perhaps, it is more convenient for them to keep and read it whenever they want.

Chapter VI

Conclusion, Discussion and Recommendations

Conclusion

Before the videotape screening, it was noted that demographic variables such as age, family status, supplementary career, education, household size, children number, agricultural space ownerships and annual income effected background knowledge about rice - fish culture among the sample. It was found that 1) younger people had higher knowledge than older people; 2) females knew more than males; 3) people who had supplementary careers knew more than those who had not; 4) people who were less educated had higher background knowledge than those who were better educated; 5) people who had large families knew more than those with smaller families; and 6) people who had land ownership knew more than those who did not; and people who had less income had higher background knowledge than those who had more income. However, the level of their knowledge about rice - fish culture before viewing the tape was at the low level with potential for much improvement; most of them used to raise fish in the ponds and had obtained their knowledge from interpersonal sources such as their neighbors and staff of the Department of Fisheries.

Based on the study of respondents' cognitive achievement relating to demographic characteristics, sex, supplementary career and

education affected the respondents' cognitive achievement of the pretest. It was found that males scored higher than females; those who had supplementary careers scored higher than ones who did not; and those who were better educated scored higher than ones who were less educated.

By comparing the results of cognitive achievement before and after viewing the tape, it was found that there was a highly significant difference ($p < .001$) in respondents' cognitive achievement due to the Rice - Fish culture videotape viewing.

In addition, the posttest results of their cognitive achievement relating to demographic variables showed that the second career factor positively affected their achievement ($p < .05$), and females scored higher than males ($p < .05$).

The paired T - test was used to analyze the cognitive achievement gain by segmented demographic variables. The results showed that every variable ranging from age to annual income had significant difference in gains between pre and post tests.

Regarding the technical quality of the videotape, respondents' mean scores on 5 point Likert - Scales indicated that all items of technical quality were rated above the mid - point ($\bar{X} > 3.5$) and the overall assessment of the program was very good ($\bar{X} = 3.81$).

The mean of respondents' attitudes towards rice - fish culture showed that the representatives of the target population liked the

program very much ($\bar{X} = 3.88$) because they could obtain more knowledge by watching the program; 96.1% mentioned that the videotape was useful in terms of providing information for increasing their income.

Therefore, the conclusion reached was that the videotape on Rice - Fish Culture was highly effective and had a significant impact on the target population in terms of both cognitive achievement and positive shifts in attitudes. Moreover, it had very good technical quality which could be suitably used with many segments of the groups of target population which had widely varifying demographic characteristics.

Discussion

Based on the study's results of respondents' background knowledge about rice - fish culture in relation to demographic variables, if we want to promote rice - fish culture effectively, we should motivate the younger population who are less than 40 years old because of their higher aspiration.

Sixty - three percent of the respondents used to raised fish but most of them grew fish in the pond. This may be because they were not sure that fish can be raised with rice simultaneously. As a matter of fact it should be emphasized that rice - fish culture is one way that can help them to increase incomes in order to improve their living conditions.

Most of respondents reported that they gained knowledge of rice - fish culture from interpersonal sources. This could be a suggestion for the Department of Fisheries to improve the ability of extension staff such as providing them training in using A/V equipment and materials. In addition, progressive farmers are also catalysts among the target group. We can record their successful fish farms as examples and show them to other farmers in different places for motivation.

In analyzing respondents' cognitive achievement comparison between the pretest and the posttest, the mean of their cognitive achievement before viewing the tape was lower than mid point of the total marks ($\bar{X} = 7.33$) and it increased to 10.04 after viewing which was still unsatisfactory. In this study, we considered only K and A values (Knowledge and Attitudes); P (Practices) could not be evaluated since rice - fish culture is an agricultural practice which requires much time to implement as discussed earlier. Although, the statistical value of knowledge achievement was low, the positive attitude values were very high in the posttest. This suggests that this videotape was particularly effective in motivating but need more support such as careful explanation before the tape screening and follow up reinforcement (wrapping up the important points, discussion) so that audiences' cognitive achievement would be increased. This finding is also supported by the literature advocating a multi - channel communication strategy wherever possible (Schramm, 1977; Coldevin, 1988).

Regarding the cognitive gain comparison, females scored significantly higher ($\bar{X} = 3.36$) than males ($\bar{X} = 1.9$). This reflects the potential for women to take more of a role in making decisions concerning economics in farming practice. This finding is given further importance by over half of the participants being females (54.9%).

Recommendations

The following suggestions are offered for further development :

1. In order to increase the effectiveness and efficiency of rural communication, video should form part of multi - media approaches with appropriate explanation from extension staff, print based reinforcement and retention strategies.

2. To improve the delivery system for public information, media orientation or training on using A/V equipment and materials should be provided for DOF personnel or staff who are in close contact with the population. This will increase their extension ability efficiently because, besides farmers themselves, they are a personal source from whom the population can obtain more knowledge.

3. To increase catalysts among farmers themselves, core persons should be trained in villages in order to increase linear communication; the bureaucratic system is top down and creates gaps between officials and farmers who are at grass root level.

4.. Based on the respondents' feedback in Appendix A, training kits or a module of each rice - fish culture step should be produced in details such as feeding, nursery, etc.

5. Fishery manuals or distribution papers should be published more to serve population preferences.

6. Videotape is a versatile tool for rural development. If it is possible that for extension officers to video record farmer agricultural activities, it would be useful for data collection functions, analysis and interpretation because it will assist production staff and save time.

7. Videotape production needs team work for every phase : pre production, production phase and post production in order to yield effective training materials. Therefore, if the administrators clarify to concerned officials the policies and necessities of the production, it will facilitate and accelerate media production.

8. Keeping in mind that new technology will not always be effective for every group of population, it should be adjusted according to environment, situation and specific receivers and be well integrated with traditional technology and indigenous knowledge.

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APPENDIX A

SUMMARY OF THE VIDEOTAPE IMPACT

**Appendix A : Summary of the Audiences' Responses Regarding the
Videotape Impact**

**1. After Viewing the program, can you apply the knowledge of Rice -
Fish Culture to raise fish as the supplementary career ?**

	Frequency	Percentage
No	4	7.8
Yes	47	92.2

2. If yes, when will you start raising fish ?

	Frequency	Percentage
This season, 1990	21	41.2
1991	9	17.6
1992	1	2.0
1993	1	2.0
When there is enough money	2	3.9
When they are ready	3	5.9
N/A	14	27.5

**and, what problem will you have ? (can answer more than one
answer)**

	Frequency	Percentage
Money	39	76.5
Fish Seeds	25	49.0
Location	21	41.2
Raising Procedure	19	37.3
Labour	10	19.6

3. Which step of fish raising in the rice field do you not understand ?
(can answer more than one answer)

	Frequency	Percentage
Understand all	18	35.3
Feeding	10	19.6
Husbandry	9	17.6
Fish seed nursery	8	15.7
Site Preparation	6	11.8
Fish Fingerling releasing	2	3.9
Water level	1	2.0

4. From which source can you increase your knowledge ? (can answer more than one answer)

	Frequency	Percentage
DOF Staff	41	80.4
Neighbor	25	49.0
T.V.	25	49.0
Radio	20	39.2
Leaflets	12	23.5
Newspapers	5	9.8

5. Which kind of media do you prefer most ?

	Frequency	Percentage
Manual	37	72.5*
Film	11	21.6
Radio	3	5.9
Leaflet	-	-

APPENDIX B

SCRIPT

Script for
Rice - Fish Culture in the Northeast of Thailand

Produced by
Urai Akkapoo

for
The Department of Fisheries
Ministry of Agriculture & Cooperatives
Thailand

 VIDEO

 AUDIO

Dissolve the picture of farmers catching frogs.

Fade in music.

Superimpose the title, "Rice - Fish Culture".

Fade out music and fade in theme.

In the olden days, we had to catch frogs, insects and other animals in the field far away. When there are a lot of people, frogs, crabs and other disappear.

Since frogs and insects have decreased, it is very difficult to find food from natural sources.

Farmers fishing in the natural pond.

But there were a lot of fish in the natural water such as ponds, streams, canals and rivers. We never had to worry because we had enough food.

Farmers could not catch any fish from the pond.

Nowadays, there are not any shrimps, crabs, fish left. So, it is very hard to get such food.

VIDEO

The students dancing,
"Rice - Fish Culture".

Superimpose the school name,
"Songpeenongwittayakarn School".

AUDIO

Now since we grow fish in the rice field, we get both rice and fish at the same time. We are not starving any more. We earn more income. And we have better life.

The performance of the little children is about the procedure of rice - fish culture. It begins with ploughing, then, rice seeding, transplanting and harvesting.

We can grow rice and fish simultaneously. When the time of rice harvesting comes, the fish are grown enough to be harvested also.

We keep some of them as our food, give our relatives some, and sell the rest.

 VIDEO

The farmers of Nonglek Village, Utoompornpisai District, Srisaket Province, were catching fish from the rice field.

The visuals of harvesting fish through the interview between Mrs. Rawadee, the extension specialist, and Mr. Udom, the chief of Nonglek Village, who was successful to raise fish in his rice - field.

Superimpose the name of Udom.

 AUDIO

These are farmers of Nonglek Village, Utoompornpisai District, Srisaket Province. They have invested their own effort and modified their rice field to grow fish. And they are proud of their success.

Rawadee : Is it hard to grow fish ?

Udom : No, I don' t think so. Fish are special friends for me They encourage me to be more diligent, which is good.

(Voice - over the visuals)

When I am in trouble or in a bad mood or have any problems, even family problems, then I go to catch some fish, and it makes

 VIDEO

 AUDIO

me feel better. Fish are my good friends. I have grown fish in my rice - field for 3 years, and it has made my family' s life better because we get both fish and rice. And I hope that this idea will encourage other farmers who have never grown fish to try to grow them.

As long as I grow them I am very satisfied and proud of my success. I would suggest that farmers try to grow fish in their rice - field, to improve their lives.

Shot of 2 women carrying fish net, walking along the paddy field.

A man digging a ditch.

Site selection is the first step of the rice - fish culture. The areas of raising fish should not be too low or too high and near a water resource.

The theme central to successful rice - fish culture is good water conservation coupled with good flood control. We have to find the

VIDEO

AUDIO

Two men building a dike while a man working with a buffalo as a background.

The shots of dikes.

The shot of a ditch.

best way to keep water in the field during rice planting.

We have to pay attention to the special circumstances of each area. If it is low flat land, we should build 4 high strong dikes. Dikes should be higher than ground level and strong enough to hold water in the field.

If it is low at any side of the plot, we build a dike at that side to prevent flooding so that fish will not be able to escape. And water can be conserved in the field.

It is true that we have lost some part of our plot by excavating the land. But if we compare the quantity of fish production to rice production which is lost, it is worthwhile because we get more income from fish.

Moreover, a ditch can hold

AUDIO

VIDEO

The shot of 2 men digging a holding pond.

A farmer spreading lime around the plot.

Fertilizer spreading.

The visual of ploughing, rice seeding and transplanting.

water better. And it is a place where we can nurse fish seeds to fingerling size before letting them grow into the field.

At one corner of the plot which is the lowest part, we should dig a holding pond. The ditch and the pond will facilitate fish harvesting.

After finishing the field preparation we carry out liming around the plot. Lime will make the soil better.

After liming one or two weeks, spread manure fertilizer around the field or mix with compost fertilizer and put it at any corner of the field.

Stocking should be timed after the rice is well established, normally about 10 - 15 days after

AUDIO

VIDEO

The shot of a ditch filling with water.

A man carrying two plastic bags of fish fries, walking down to the ditch, and releasing them into the ditch.

The visuals of a farmer preparing feed for fish fries.

transplanting.

If the fish fries are too small, we should nurse them along to a fingerling size, about 5 c.m. long which is an appropriate size to be released into the field. This will ensure a higher survival rate.

If fish seeds are bought, we had better put fish bags in the water in order to adjust water temperature in the bags with the water in the pond. This method will prevent fish from shocks. Then, release fish from the bag slowly.

The stocking rate should be appropriate to the plot size, and in a suitable ratio with fish size and species. Fish are best

VIDEO

AUDIO

stocked at 2,400 - 3,600 per hectare or 1,000 to 1,500 per acre. If the stocking rate is too high fish will grow slowly because the food ratio is not sufficient for the fish quantity.

Suggested species including common carp, puntius, tilapia, Chinese carp because they are easy to raise, grow fast, are delicious, do not to escape from the field and they are not rice enemies.

The visuals of the farmer feeding his fish fries.

Although fish fry can eat natural food in the field which is activated by liming and fertilizing, they will grow faster if we give them supplementary high nutrient feed such as fish meal, peanut oil meal, animal feed, and fine rice bran. Mix all ingredients together. Then, give it to the fish fry twice a day, in the morning and in the evening.

VIDEO

AUDIO

The visuals of a rice field after transplanting.

After rice transplanting for 10 - 15 days, the field is filled with water. We should wait until the rice is well established. Then, release fish fingerlings into the field.

Fish will swim around the field in order to eat natural food which is activated by liming and fertilizing at the field preparation phase.

The visuals of a farmer taking care of his rice - fish farm.

Growing fish in the rice field fully utilizes the land space.

Factors which make rice - fish culture successful are care and maintenance. Care should be taken that water depth is maintained at 30 cm. Flooding, leakage, and thieves should be prevented. Predators should be removed prior to stocking and

VIDEO

AUDIO

The visuals of a woman
feeding fish with rice bran.

control afterwards.

Although there is natural food in
the field, fish will grow faster if
we give them supplementary
feed such as rice bran, broken
rice boiled with bran, termites,
insects, vegetables and grass
which fish can eat.

The visuals of the rice - fish culture
field in the harvest season.

When the rice harvesting season
comes, the water in the field
dries up. Rice becomes yellow.
Both fish and rice growing are
complete.

Three girls harvesting
rice.

We had better do rice harvesting
first. Then, catch the fish
afterwards.

The visuals of pumping water
out of the rice field.

To catch fish, we can either do
it in small quantities or catch
them all.

Pumping water out of the ditch.

If we want to catch all the fish,

VIDEO

AUDIO

Drain water to the holding pond.

Farmers catching the fish from the holding pond.

The visuals of neighbors watching fish harvesting.

we should pump the water out of and drain it to the holding pond which is the lowest place. Fish will be gathered there.

It is very convenient to catch fish this way.

It is thus very worthwhile to grow fish in the rice - field. If we invest and modify our paddy field only a little, we will get a lot of benefits.

We will have both fish and rice for our consumption. If there are a lot of fish, we can sell them. Thus our incomes are increased. And our lives are improved.

If there is any question or any body needs help and advice, please contact the staff of the Department of Fisheries at any

VIDEO

AUDIO

office.

Graphics of credits.

Fade out theme and fade in music.

APPENDIX B

PRETEST

Part I

Thank you very much for your time and effort to participate in this project. All information received will be kept anonymous and confidential. It will be used solely for the purpose of evaluating the videotape on "Rice - Fish Culture". Please answer all items.

1. NameFamily Name
2. Age years
3. Sex : a) Male
- b) Female
4. Marital status : a) Single
- b) Married
5. Second career : a) Yes
- b) No
6. Education : a) Lower than compulsory
- b) Compulsory Education (Primary School)
- c) More than Compulsory
7. Household size : a) 3 - 4
- b) 5 - 6
- c) ≥ 7
8. Number of children : a) 1 - 2
- b) 3 -4
- c) ≥ 5
9. Ownership of agricultural space : a) Yes
- b) No

10. Renting of paddy field : a) Yes

b) No

11. Income per year : a) < 20,000 Baht

b) \geq 20,000 Baht

• -----

Part 2

Please select one answer for each question according to your opinion

1. Have you had any knowledge of rice - fish culture ?

a) Yes

b) No

2. If you answered "yes" in the question no. 1, what level of knowledge do you have about rice - fish culture ?

Excellent	Good	Fair	Little	Very Little
5	4	3	2	1
_____	_____	_____	_____	_____

3. If you answered "yes" in the question no. 1, have you ever applied that knowledge to raising fish ?

a) Yes

b) No

4. If yes, when was your last fish culture ?

.....

5. If yes, where did you raise fish ?

a) Pond

b) Paddy Field

6. From which source did you get your knowledge of fish culture ?

a) Yourself

b) Neighbor

c) Staff (of the Department of Fisheries)

d) Media (radio, television, newspaper, distributing paper etc.)

e) Others (please specify)

Part 3

Please answer each question by circling the letter which best indicates your response.

1. The most appropriate site for rice - fish culture should be
 - a) low land
 - b) high land
 - c) slope flat area
 - d) not too low and not too high

2. Water can be stored in the paddy field by
 - a) building dikes
 - b) digging trenches
 - c) digging a pond
 - d) a, b, and c are correct

3. If the raising plot is completely low, the plot preparation can be done
 - a) without building dikes and digging trenches
 - b) by digging trenches but not to build any dike
 - c) by building 4 dikes
 - d) no answer is correct

4. If the raising plot is low at any side, we should
 - a) build a dike at only the lowest side
 - b) build a dike at every side
 - c) digging a ditch at the lowest side only
 - d) b and c are correct

5. The advantage of a ditch and a holding pond is
 - a) water storage
 - b) water drainage
 - c) fish habitat
 - d) a, b, and c are correct

6. Liming should be done
- | | |
|---|--|
| a) before digging a ditch and
a pond | c) after digging a ditch and
a pond |
| b) during digging a ditch and
a pond | d) any time |
7. The advantage of liming is
- | | |
|-----------------------------|---------------------|
| a) fish feed | c) rice fertilizer |
| b) to adjust soil condition | d) none are correct |
8. Compost or manure fertilizer can be prepared in the plot
- | | |
|------------------|---------------------------------|
| a) before liming | c) at the same time with liming |
| b) after liming | d) a, b, and c are correct |
9. The advantage of fertilizer is
- | | |
|---|------------------------|
| a) to activate natural food for
the fish | c) a and b are correct |
| b) nutrient for rice | d) a and b are wrong |
10. If the fish seeds are too small, we should
- | | |
|--|---|
| a) often change water for them | c) release them into the field
immediately |
| b) nurse them to the fingerling
size before releasing into
the field | d) a, b and c are correct |
11. Supplementary feed which can make the fish grow fast are
.....
- | | |
|--|--------------------------------|
| a) peanut oil meal, animal feed,
fine rice bran | c) grass, vegetable, rice bran |
| b) broken rice, termite | d) a, b, and c are correct |

12. If we bought fish seeds, we should put the fish bags in the ditch before releasing so that
- a) the fish would not be dizzy
 - b) the fish could adjust themselves to the new habitat
 - c) the water temperature in the bags and in the ditch would not be much different
 - d) a, b and c are not correct
13. The fish seeds can be nursed in
- a) the trenches of the plot
 - b) the holding pond
 - c) other places where are not the culture plots
 - d) a, b, and c are correct
14. The appropriate fish species to raise in the paddy field should be
- a) strong and easy to raise
 - b) delicious
 - c) any species which are not harmful to rice
 - d) a, b and c are correct
15. The factors which make rice fish culture successful are
- a) to ensure that dikes do not leak or erode.
 - b) to maintain water depth at the appropriate level.
 - c) to eliminate fish enemies.
 - d) a, b, and c are correct
-

APPENDIX C

Post Test

Part 1

Note : Part 1 of the posttest was identical with Part 3 of the pretest.

Part 2

Thank you for your cooperation in answering the questionnaires.

1. After viewing the videotape on "Rice - Fish Culture", please rate it as to how much you like it ?

Very much	Much	Like	A little	Dislike
5	4	3	2	1
_____	_____	_____	_____	_____

2. Why did you rate the program as you did ? (can answer more than one answer)

.....

3. How much knowledge did you gain of Rice - Fish Culture ?

Most	Much	Increased	A little	No
5	4	3	2	1
_____	_____	_____	_____	_____

4. After viewing this tape, do you think you can apply the knowledge from this program in order to grow fish by yourself ?

Very well	Yes	Yes but need a little help	Yes but need much help	Cannot
5	4	3	2	1
_____	_____	_____	_____	_____

5. Do you think the videotape on Rice - Fish Culture will be useful to increase your income ?

Yes

No

Part 3

For each of the techniques presented below, please circle the number that applies to you according to the following scheme :

5 = Excellent, 4 = Good, 3 = Fair, 2 = Poor, 1 = Very poor

Quality/Technique of the tape	Excellent 5	Good 4	Fair 3	Poor 2	Very Poor 1
1. Appropriate Length	5	4	3	2	1
2. Clarity of Content	5	4	3	2	1
3. Accuracy of Content	5	4	3	2	1
4. Appropriate Density of Content	5	4	3	2	1
5. Interest Level of Sequences	5	4	3	2	1
6. Pacing of Each Visual Content	5	4	3	2	1
7. Continuity	5	4	3	2	1
8. Lighting	5	4	3	2	1
9. Editing	5	4	3	2	1
10. Appropriate Pictures	5	4	3	2	1
11. Focus of Pictures	5	4	3	2	1
12. Appropriate Music or Sound Effects	5	4	3	2	1
13. Clarity of Music	5	4	3	2	1
14. Appropriate Audio Level	5	4	3	2	1
15. Overall Assessment of the Program	5	4	3	2	1

Part 4

1. After viewing the program, can you apply the knowledge of Rice -
Fish Culture to raise fish as the supplementary career ?

No

Yes

2. If yes, when will you start raising fish ?

.....

and what problem do you think you will have ? (can answer more
than one question)

Money

Fish seeds

Location

Raising procedure

Labour

3. Which step of fish raising in the rice field do you not understand ?

.....

4. From which source can you best increase your knowledge ?

(can answer more than one answer)

DOF staff

Radio

Television

Newspaper

Distributing document

Neighbor

Others (please specify)

5. Which kind of media do you prefer most ?

Film (Video)

Radio

Manual

Others (please specify)
