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ABSTRACT

Adult leaders from 14 counties, divided into matched participating (57) and control (54) groups, were surveyed to evaluate whether Cooperative Extension Service programs on land use planning in Arkansas resulted in increased knowledge and more favorable attitudes toward such planning. Participants filled out attitudinal questionnaires before attending an educational meeting. After two months, questionnaires including attitudinal, factual, and demographic questions were sent to both groups. Results did not substantiate a previous evaluation showing no knowledge increase but greater favorability. In this study, no significant meeting effects were found. Though the participating group was more favorable toward county government control of land use planning, less favorable toward Federal responsibility, and less likely to think no government level should be involved than the control group, these differences were shown to have existed even before the meeting. Only one factual item was significantly different--meeting participants were more likely to know zoning could protect farm land from urban development. Although this and the earlier evaluation found interest about land use planning high, county leaders preferred data on current land use policies and actual planning processes. Also, newsletters or some other medium might be more effective than public meetings. (RS)

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Evaluation of the Effect of Cooperative Extention Service Edueational Programs on Attitudes and Knowledge About Land Use Planning

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Land use planning and management of natural resources has been a topic of interest in the United States during the past several years. Some states have adopted wide-scale land use planning to address many of the problems of conflicting demands for land use which accompanied a rapid growth in population, technological developments, and the need of land for increased agricultural production. Arkansas has no state land use plan. There is authority for city and county planning, but it has not often been exercised.

Arkansas in recent years has had a rapidly growing population, increased manufacturing development, and an expanding recreational-tourism industry to compete for land uses with the dominant one of agricultural production. This makes the topic of land use planning of increasing importance to leaders in the state.

The Arkansas Cooperative Extension Service has conducted land use planning educational programs for leaders during the past few years. The education of county leaders in the organizational and operational processes of land use planning is one of the primary objectives of these programs. This objective was implemented by holding informational meetings in several districts of the state to which county leaders in the area were invited. Since land use planning is relatively new to many people in Arkansas it is important that county leaders be accurately informed and aware of the issues involved in land use planning. It is also important that they understand how land use planning programs can be implemented to meet the needs of area residents. These educational programs, then, have an important role in the dissemination of information, so that leaders will be effectively and accurately informed.

An evaluation of a Cooperative Extension Service land use planning educational meeting for leaders in one of the districts was conducted previously (Danforth and Voth, 1977). That design consisted of a participant and a control group. The participant group was tested on their attitudes and knowledge about land use planning immediately following the meeting, while the control group was sent a questionnaire by mail. Comparisons between the experimental and control groups found few significant differences. The differences found were in attitudes and not in knowledge. The major impact of the meeting seemed to be one of increasing favorability among participants toward land use planning in general, and toward regulation of agricultural land in particular.

Another means of exploring the effect of Cooperative Extension Service land use planning educational efforts was employed in the analysis of data collected in a 16 county survey of attitudes toward land use planning (Jackson, Danforth, Voth, and Hudson, in preparation, 1978). The percentage of the population in the 16 counties who were contacted by Cooperative Extension Service personnel regarding land use planning

was correlated with the mean attitude in the counties toward several aspects of land use planning. This set of analyses showed the extent of Cooperative Extension Service educational effort to be positively related to favorability toward governmental regulation of land, toward safety and sanitation regulations, and toward governmental regulation to protect agricultural land. No relationship of Cooperative Extension Service educational effort to awareness of land use planning in the counties was found, however.

The results obtained from these two very different data sources and types of analysis are quite similar. Both show no increase of knowledge or awareness of land use planning associated with Cooperative Extension Service educational efforts. Both do show, however, a positive relationship to attitudes. In each set of analyses higher favorability toward land use planning or government regulation of land was found, as was a higher favorability toward regulation of agricultural land.

The implication of these results was discussed in the previous publication (Danforth and Voth, 1977). It was concluded that a more positive attitude toward land use planning needed to precede the acquisition of detailed information about it. The results also indicated, however, that leaders wanted the Cooperative Extension Service to take an active role in land use planning education, and that factual information about land use planning processes was wanted. That no knowledge increase occurred as a result of the program suggested that the Cooperative Extension Service should concentrate on this aspect of the programs.

The present evaluation was conducted to further analyze the impact of the Cooperative Extension Service educational land use planning program, and to replicate results of the previous research. This design is somewhat different from the one employed previously. Rather than random assignment to participant and control groups, which did not work well in practice (Danforth and Voth, 1977), two separate but matched groups were chosen; rather than one testing per group, the participant group was given both a pre and a post-test; and rather than testing the participant group immediately following the meeting, the test was given approximately two months following the meeting.

Based on previous results, one would expect program participation to result in more favorable attitudes regarding land use planning issues. Due to the nature of the program, one must also hypothesize an increase in knowledge about aspects of land use planning, even though this result was not found previously.

Methodology

Design

The quasi-experimental design provided for one group which would attend a meeting on land use planning, and another matched group of equal size that did not attend. Both groups were selected by county Cooperative Extension Service agents. The control group was not selected until after the program to be evaluated had been conducted. At that time these persons were selected to match as well as possible those who had attended the program. Characteristics considered for matching were community position, political office, occupation, etc.

Thus, there was no random selection, nor random assignment to groups.

The group attending the meeting was given a questionnaire to be completed at the beginning of the meeting. A second questionnaire was then developed and mailed to both groups after the meeting. Thus, the design provided for a pre and post-test for the participant group, and only one test for the control group. This is a slight variation of the design that Campbell and Stanley (1963) refer to as the nonequivalent control group design. We decided to use this design because the control group was selected after the participant group. This procedure allowed us to select a control group with similar characteristics to those of the participant group, thus making the groups more comparable.

Subjects

Of the adult leaders attending the meeting, 57 were included in the participant category of the research. The only criteria for selection were that the participant had completed the pre-test questionnaire and that a mailing address was available.

The county Cooperative Extension Service agents were then asked to review the list of meeting participants from their county, and prepare a second list of county leaders to be used for control purposes. As stated above, the control group subjects were matched with the participants on several characteristics. They were selected, when possible, in equal numbers from the same county as participants. These counties include Arkansas, Ashley, Bradley, Calhoun, Chicot, Cleveland, Dallas, Desha, Drew, Grant, Jefferson, Lincoln, Lonoke, and Pulaski.

Materials

The program was evaluated by self administered questionnaires. 1/ The pre-test questionnaire was designed to assess attitudes toward aspects of land use planning. The second, or post-test questionnaire, included not only this, but also examined knowledge of present Arkansas land use policies, and obtained information about the demographic characteristics of the participants, and the participants' evaluation of the program. The contents of the questions were taken from the Cooperative Extension Service program materials, land use planning materials developed by the Extension Committee on Organization and Policy, planning guidelines and materials prepared by the University of Arkansas Division of Community Affairs, and from a questionnaire designed by the staff of the University of Arkansas Department of Agricultural Economics and Rural Sociology to assess land use planning attitudes in Arkansas.

The attitudinal questions measured favorability toward land use planning in general, public versus private rights in land use control, preservation and control of agricultural land, and preservation and conservation of the environment. The factual items related to Arkansas land use policies, including some items which were assumed to be widely known, and others which were more technical in nature.

The questionnaire format consisted of a brief instruction page,

1/ Copies of the questionnaires will be supplied by the authors upon request.

11 attitudinal items answered on a five-point Likert scale, 2 attitudinal questions of the multiple choice type, 7 factual questions answered as true-false-don't know, and demographic questions. In addition, for those attending the meeting, ratings of the program were requested. Those not attending the meeting were asked what types of information concerning land use planning would be of interest to them.

Procedure

The program to be evaluated was a meeting sponsored by the Cooperative Extension Service in conjunction with the University of Arkansas Department of Agricultural Economics and Rural Sociology, and the Division of Community Affairs of the University of Arkansas. The four hour meeting was held in Pine Bluff, Arkansas, on May 31, 1977, beginning at 4:00 P.M.

The first half of the meeting consisted of a discussion of "Land Resources Today--What are the Issues" by a panel of University of Arkansas faculty from the departments of law and sociology. This was followed by an open discussion period. Next was a slide presentation of land use planning issues which was accompanied by a prepared script. This was followed by a dinner.

The second half of the meeting consisted of panel presentations by a group from Crittenden County, Arkansas, on the development and administration of their county-wide land use planning program.

Pre-test questionnaires were distributed at the beginning of the meeting. Instructions were read by the moderator and anonymity was assured. The completed questionnaires were then left on the tables to be collected. Participants were informed of a follow-up questionnaire that would be mailed to them after the meeting.

On July, 25, 1977, mailing of this questionnaire was begun to both participants in the meeting and to the control group. To assure a high response rate from the mailed questionnaire a series of follow-ups to the initial mailing was conducted from the University of Arkansas using a method developed by James A. Christenson (1974). When the daily response rate dropped to less than one percent, a postcard reminder was sent for all non-returned questionnaires. When the daily response rate again dropped to one percent, a second copy of the questionnaire was sent. This process was continued through a third registered mailing of the questionnaire. Eighty-nine percent of the leaders attending the meeting responded to the mailing, while ninety percent of the control group responded. This data, along with the respective response rate per county, is presented in Table 1.

Insert Table 1 about here

Results

First the control or non-participant group was compared with the experimental group (post-test) in attitudes and knowledge about land use planning. Responses to 13 attitudinal items and 7 factual items were

analyzed. There were a few significant differences. 2/ The participant group was less favorable toward state government responsibility in deciding controls for the use of land, more favorable toward county government responsibility, and less likely to think no government level should have responsibility (Table 2). On another attitudinal item there was also a significant difference in opinion; the participant group was more favorable than the control group toward controlling population growth in certain areas by limiting the number of new houses built or by other means (Table 3). Responses to only one factual item showed a significant difference between the groups; the experimental group was more likely than the control group to know that zoning can be used to protect agricultural activities from urban development (Table 4).

Insert Tables 2, 3, and 4 about here

Since each person in the control group had been chosen to match a person in the experimental group, a second set of analyses was done using the matched pairs. 3/ Similar results to the first analyses were obtained. Significant differences were again found in opinions about which governmental level should have responsibility for deciding controls on land use. The participants were more likely than their matched controls to favor county government; and less likely to favor state government or to think no government level should be involved (Table 2). The participants were also more likely to know that zoning can be used to protect agricultural activities (Table 4). The only difference in results between the two sets of analyses was the lack of a difference in opinion between the two matched groups on the question of controls on population growth.

Simple between-group tests had shown no significant differences in several characteristics of the control and experimental groups, including sex, land ownership, the use of their land, age, and education. Thus, the two groups, as a whole, seem fairly comparable. In order to assess how comparable the matched persons in the two groups were, other tests were performed. Correlations of characteristics of the matched persons were tested, as well as differences in characteristics of the matched persons. There was a significant correlation only of sex; and a significant difference in the use of their land. Thus, the matching procedure, while it did obtain a group similar to the participants overall, was apparently not very effective since pairwise tests are only more efficient when there are correlations in the paired values. This suggests that the first set of analyses presented, which did not take the matching into account, is a better test of differences. That similar attitudinal and knowledge differences were found when using tests with the matched pairs does, however, substantiate the results obtained.

From these results it appears that participation in the educational

2/ For attitudinal items a t-test for differences in group means was performed. For factual items Chi Square tests of significance were performed.

3/ All tests of significance were performed using a t-test for matched pairs. In these tests, the "don't know" response to factual items was treated as a neutral, or midpoint category.

meeting resulted in a small amount of attitudinal and knowledge change. The nature of this change, however, is highly specific in topic.

Another test was conducted, however, to see if there were any differences in attitudes of the participants before and after the meeting. Factual items had not been asked in the pre-test, so responses were not available for comparison. There was a significant difference on two attitudinal items when responses before and after the meeting were compared. However, these two items were not the same items on which differences between the control and participant groups had been found. Therefore, these differences could not be concluded to be real effects of meeting participation. This would indicate no program effects. The result was substantiated when participant responses to the pre-test were compared with control group responses. There apparently were differences in opinion between the participant and control groups even before the meeting. The experimental group, before participating in the meeting, was less favorable than controls toward federal government responsibility, more favorable toward county government, and less likely to think no government level should be involved (Table 5). These are essentially the same differences found when the control group had been compared to the experimental group after participating in the meeting. The obvious conclusion, then, is that there are essentially no effects which can be attributed to meeting participation, but that there was an element of selectivity as to who attended the meeting.

Insert Table 5 about here

The lack of a meeting effect might be partially attributable to the fact that the post-test given to the participant group was not mailed until approximately two months after the meeting. In such a time span, the impact of the meeting might have lessened. Still, that no differences which could be attributed to the meeting were found after two months indicates the educational program did not have any long-lasting effects.

One other design problem might also be considered. The control group was tested at the same time as the participant post-test, rather than at the time of the pre-test. Therefore, the control group could have been in contact with the participant group following the meeting, effecting similar attitude changes. While this possibility cannot be discounted, it seems fairly unlikely, and it can probably be safely concluded that there were no meeting effects.

The participants were asked directly whether they had any change in attitude as a result of the meeting. A majority said they had not. Thirty-eight percent said they had. However, when asked about which topic their minds had changed, only nine people who had completed the pre-test responded. When participant's answers before and after the meeting were compared, there was some change in response on 8 of the 13 attitudinal items. However, the pattern of change was not consistent from item to item, and there were so few cases that no conclusions could be drawn.

Participants were also asked which topic of discussion in the meeting was most important to their needs or interests. Twenty-eight of the 51 participants responded. There was a variety of answers,

making many of them hard to categorize. Two general categories, however, made up the choice of almost half of those responding. The use and protection of agricultural land and natural resources, such as timber and wilderness areas, was of most interest to 29 percent; and the level of government which should be responsible for land use planning, including the role of county level planning, was of most interest to 18 percent of respondents.

To further define what most interested the participants about the meeting, they were asked what part of the program gave them the most information. It will be recalled that the meeting had three distinct sections: a discussion by university faculty about humanistic aspects of land use planning issues; a slide presentation of land use planning issues; and a discussion of the development and operation of a functioning county planning board. As can be seen in Table 6, a majority felt the discussion of county planning to be most informative, with the faculty discussion of land use planning issues least informative.

Apparently, land use planning is considered an important topic among county leaders, since over three-quarters of both the participant and non-participant groups agreed it was an important issue for discussion in their counties.

Since the meeting did not appear to produce any significant changes in attitudes or knowledge concerning land use planning, it is of interest to examine what type of information is most desired by the leaders, and in what form. This question was asked of the control group. Table 7 shows the percentage interested in various types of information, and Table 8 shows the percentage preferring different forms of communicating the information. The largest number wanted information on present land use laws and policies in Arkansas, with a majority also wanting information on land use planning issues. A public meeting, such as that evaluated, was not a particularly popular form from which to receive information. Instead, newsletters were most preferred, and having information available at the Cooperative Extension Service office was the second most popular form of receiving land use planning information.

Insert Tables 6, 7, and 8 about here

Summary and Discussion

In this evaluation of a Cooperative Extension Service land use planning educational program, it was hypothesized that program participation would result in greater favorability toward aspects of land use planning, in particular toward land use planning as a process and toward government regulation to protect agricultural land. An increase in knowledge about land use planning processes was also hypothesized as a result of the meeting. However, no significant meeting effects were found.

These results do not substantiate those of a previous evaluation, where greater favorability was found, but no knowledge increase. One difference in design might partially account for the lack of effect found in this evaluation. While the previous evaluation employed a post-test for participants immediately following the meeting; in the present evaluation, participants were not questioned until approximately two months after the meeting. During such a time interval any effects

of the program might have dissipated. This calls one to question the significant effects previously found. Since program effects were not found after a time interval of only two months, they are certainly not long-lasting enough to permit one to conclude any real effects which can be attributed to the meeting. Especially noticeable is the lack of effect on knowledge of participants in any evaluation of Cooperative Extension Service land use planning educational program conducted in this research project.

Another qualification that should be taken into consideration involves the battery of questions which were asked to measure attitude and knowledge change. The limits of respondent patience, particularly when self-administered questionnaires are used, preclude the use of long, detailed instruments. Consequently, there may be questions which could have been asked where significant program effects would have been registered. However, we do not know what those questions would be, and the questions used were chosen quite carefully to represent the potential cutting edge of attitudes and knowledge toward land use planning.

From these and previous results we conclude that the Cooperative Extension Service land use planning educational program has minimal, if any, effects on its participant leaders' knowledge or attitudes.

While significant effects can not be concluded, both program evaluations found a high interest among leaders in the topic of land use planning. Both evaluations also found that information about present land use laws and policies was of most interest to the leaders. In addition, these evaluations found that leaders wanted a more active role for the Cooperative Extension Service in land use planning education than merely having the information available upon request at the office. Newsletters seemed particularly popular as a form of receiving information. In both districts the program which was evaluated was essentially the same; and in both cases the part of the program which presented information on the actual development and operation of county planning most interested participants. Thus, leaders do appear to want information on land use planning from the Cooperative Extension Service.

The Cooperative Extension Service educational program on land use planning does not appear to be effective in giving leaders the information which they have expressed an interest in. This should make one question whether a public meeting is the best means for presenting such information, or whether another form, such as a newsletter, might be more effective. Also, one must question the meeting content or form. While information on land use issues seems to be of some interest to the leaders, they consistenly prefer information on land use planning operational processes, and on current land use policies. Perhaps future efforts should be changed to include more of this type of information. Only if the leaders understand how land use planning works, and how it can be applied to their area, will land use planning education have any practical importance. Perhaps some attention should also be given to the educational process itself to see that the meetings are more effective. One focus would be the systematic mechanisms of reinforcement that facilitate the learning process.

Two final points need to be made in conclusion. (1) Apparently

selective participation plays an important role in the differences found in the previous research. Not surprisingly, people who agree with what will be presented at the meetings--or what they assume will be presented at the meetings--attend and others do not. Thus the meetings change no one's mind, and really don't influence anyone very much. They may merely reinforce pre-existing views. (2) Negative research results are by now very common in evaluation of social and educational programs--to the point that some have despaired of using experimental designs or any approximation of experimental designs to evaluate programs and have gone to "softer" methods. There are many things that go on in society, including some within the fields of education and adult education, which our conventional wisdom regards as eminently useful and effective, but which empirical research evidence does not support. Perhaps the recognition of this fact makes another case of negative research results somewhat more tolerable.

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Table 1. Response Rate per County to Mailed Questionnaires Among the Control and Participant Groups

	Total sample		Participant group		Control group	
County	Total contacted	Percent returned	Total contacted	Percent returned	Total contacted	Percent returned
Arkansas	8	100.0	4	100.0	4	100.0
Ashley	12	83.3	6	83.3	6	83.3
Bradley	8	87.0	4	75.0	4	100.0
Calhoun	6	83.0	4	75.0	2	100.0
Chicot	6	66.6	3	66.6	3	66.6
Cleveland	8	100.0	5	100.0	3	100.0
Dallas	10	90.0	5	100.0	5	80.0
Desha	6	100.0	3	100.0	3	100.0
Drew	10	90.0	5	100.0	5	80.0
Grant	8	100.0	4	100.0	4	100.0
Jefferson	6	66.6	3	33.3	3	100.0
Lincoln	9	88.8	4	75.0	5	100.0
Lonoke	8	87.0	4	100.0	4	75.0
Pulaski	6	100.0	3	100.0	3	100.0
[illegible]	111	89.0	57	87.7	54	90.0

Table 2. Tests of Differences Between the Control and Post-test Participant Groups in Support for Government Levels to "have Responsibility in Deciding Controls on the Use of Land"

Government level	Percent support		Group comparison		Matched pairs comparison	
	Participant group	Control group	t	df	t	df
State	24	46	2.31*	96	-2.29*	41
County	76	40	-3.89**	96	4.58*	41
None	10	25	1.98*	96	-2.21*	41
N of cases	50	48				

* $p < .05$
** $p < .001$

Table 3. Test of Differences Between the Control and Post-test Participant Groups in Support for "Controls on Population Growth in Certain Areas by Limiting the Number of New Houses Built or by Other Means"

	Percentage distribution of responses							Group comparison	
Group	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N	Mean a/	t	df
Control	8.3	29.2	20.8	18.8	22.9	48	2.8	-2.01*	91.52
Participant	6.3	52.1	18.8	12.5	10.4	48	3.3		

* $p < .05$

a/ Means are based on a response scale where 1=strongly disagree and 5=strongly agree.

Table 4. Tests of Differences Between the Control and Post-test Participant Groups in the Knowledge that "Zoning can be used to Protect Agricultural Activities from Urban Development"

	Percentage distribution of responses				Group comparison		Matched pairs comparison		
Group	True	False	Don't know	N	Chi Square	df	Mean a/	t	df
Control	58.7	19.6	21.7	46	7.77*	2	.41	2.73**	40
Participant	84.0	6.0	5.2	50			.78		

* $p < .05$
** $p < .01$

a/ Means are based on a response scale where 1=true, 0=don't know, and -1=false.

Table 5. Test of Differences Between the Control and Pre-test Participant Groups in Support for Government Levels to "have Responsibility in Deciding Controls on the Use of Land"

Government level	Percent support		Group comparison	
	Control group	Participant group	t	df
Federal	23	8	1.94*	85
County	40	79	-4.04**	85
None	25	8	2.16*	85
N of cases	48	39		

* $p < .05$
** $p < .001$

Table 6. Percentage of the Participant Group Preferring Different Sections of the Meeting

Meeting section	Percentage distribution of responses
Faculty discussion	17
Slide presentation	30
County planning experiences	52
N of cases	46

Table 7. Percentages of the Control Group Expressing Interest in Different Types of Land Use Planning Information

Information type	Percentage
Present land use laws and policies in Arkansas	83
Land use planning issues	70
Where to obtain specialized information and help with land use planning	49
Present land use laws and policies in other states	34
N of cases	47

Table 8. Percentages of the Control Group Expressing Interest in Different Forms of Land Use Planning Information

Information form	Percentage
Newsletter	67
Information upon request at office	56
Public meeting	38
Television programs	18
N of cases	45