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# Innovation, Adoption, and Cultural Change: Guide Lines for Administrators of Adult Education Programs

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INNOVATION, ADOPTION AND CULTURAL CHANGE:  
GUIDE LINES FOR ADMINISTRATORS OF ADULT EDUCATION PROGRAMS

By

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## I. INTRODUCTION

### 1. A Concept of Adoption

Since John Dewey defines education as: "Getting from the present the degree and kind of growth there is in it..."<sup>(1)</sup><sup>1</sup>, it would appear that the acceptance by learners and the subsequent adoption into their culture of the precepts, practices or procedures taught or advocated by educators should be one of the most effective means of evaluating the efficacy of the methods employed by educational institutions and the techniques used by educators in effecting the behavior changes which such a concept of education contemplates.

But the concept of adoption as a means of evaluation of educational practices goes much further than the evaluation of the efficacy of methods and techniques. To be complete, a study of adoption must include the media used in communicating the desirability of the behavioral changes sought to potential learners and their relative efficacy in making such learners aware of the desirability for change; the motivation which will interest the learner in acquiring the knowledge or skill necessary to make the change; the factors which impel the learner to accept or to reject a change in his behavioral pattern; the factors which appear to the learner as indicating that the desired change is beneficial to him in his evaluation of it; the factors which will overcome the inertia of habit, custom, or tradition in impelling the learner to try the proposed change, and, finally, the factors which, after successful trial and favorable evaluation, will still cause him to adopt the change as a part of his cultural pattern, even in the face of prior habit, custom or tradition.

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<sup>1</sup>Numbers in parentheses refer to the numbered references in the bibliography to the works cited.

While change has come to be regarded as a continuing condition in contemporary life by the more intelligent members of society, we find that, in the less complex cultures where patterns of life are largely fixed by tradition, the introduction of innovations, particularly those from other cultures, may be stubbornly resisted. On the other hand, some innovations, seemingly equally alien, may be welcomed and adopted quickly and with little or no question.

It is the purpose of this study to survey the literature with respect to those factors involved in reaching, interesting, inducing acceptance to the point of initiating a trial, evaluating favorably the trial results, and the adoption into the learner's cultural pattern of the adult educator's potential clients, the precepts, principles or practices which he advocates.

## 2. The Functions and Importance of Adoption to the Adult Educator.

Adoption, as a technique of evaluation, is particularly important to the Adult Educator because of the characteristics of Adult Education. The facts that the clientele it serves consider it as an additional activity, that they are mature and experienced and that they are free to continue, to drop, to accept recommended practices or to summarily reject them at will, make an understanding of the factors of adoption of primary importance to the Adult Educator. Adults require meaning, utility and satisfaction from an educational program as a prerequisite for its continuation. The factors which we have discussed as leading to the adoption of precepts, practices and procedures are, therefore vital to continuing and effective adult educational programs.

## 3. Resume of the Origin and Development of the Adoption Concept.

The concept of adoption, as a technique for the evaluation of

educational practices, appears to originate with Agricultural Extension. O. B. Martin (2) mentions its use by Dr. Seaman A. Knapp, generally considered as the father of Agricultural Extension, in the early evaluation of the work of agricultural agents.

Its use was, however, largely dichotomous - either the advocated practice was adopted or it was not. Very early, however, the inadequacy of this evaluation appeared. Educators, endeavoring to evaluate media for reaching the farmers and the relative merits of different methods and techniques employed in the educational process, began examining more closely the concept of adoption.

In 1929, M. C. Wilson (3) published an extensive study covering extension methods and their effectiveness as measured by the adoption of 27,032 agricultural and home making practices on 8,738 farms in twelve states. It contains interesting and valuable tables on adoption both by subject matter and by methods or techniques used in instruction. He also provides a table showing the means or media used in reaching the farmers. The predominance of "indirect influence" or hearing about practices later adopted from other farmers is particularly noteworthy. Without empirical proof, he reasons that the efficacy of the educator is predicated primarily upon the audience accepting the paid extension worker as an expert in the phase of the subject matter involved (4). In commenting on the adoption of agricultural practices, C. H. Grattan (5) comments: "It turned out that farmers were quicker to initiate methods used successfully by one of their own number on his own place than they were to experiment with methods used on a government operated demonstration farm. The latter, they persisted in regarding as only succeeding because of 'government backing' - which allowed free spending of money - not because the methods used were of a kind useful to dirt farmers."

Such comments, as well as the statistics which proved that, in spite of widespread acceptance of improved agricultural and home making practices, a surprising and alarming number of farmers and farm women were still not adopting such practices, even where equally exposed to their advantages pointed up the need for additional research into the factors which determined the adoption not only improved farm and home making practices, but also of other desirable changes in social behavior.

Empirical studies in these fields required improved methods of sociological research. These were in the process of development during the 1930's, largely in the form of the development of empirically valid methods of sampling public opinion. These efforts were set back by the incidence of World War II. The end of the war saw a prompt emergence of interest in all forms of sociological research, from sales markets and politics to the elements involved in social change. Recent advances, particularly since 1950, have resulted in the identification of and controlled methods of testing for the effects of the factors involved in the process of adoption.

## II. METHODS OF MEASURING ADOPTION

As we have seen above, early efforts at employing adoption as a technique of evaluation consisted in determining only three elements:

1. Where the individual had received the information concerning the practice under study;
2. The method used in communicating the knowledge to the learner, and,
3. Whether the learner adopted or rejected the practice as a result.

We have also seen that, in spite of equal exposure to media of information, to a wide variety of methods for the dissemination of knowledge, and a large proportion of those exposed to these factors adopting the advocated practices, there still remained a large number of individuals

who failed to adopt the practices.

To determine why these individuals failed to adopt practices which were of such obvious and demonstrable value required the isolation and identification of factors which might influence the decision, and to test each of such factors separately and empirically for its influence on the decision.

Following the recognized procedure in scientific research, the first step was to develop common bases for comparison of the various factors. This was done in the development of the Sewell Socio-Economic Status Scale, the Chapin Social Participation Scale, and other rating scales of similar nature designed to reduce the many traits entering into a behavior factor to a score subject to statistical handling.

The next step was the development of scientific sampling methods to provide statistically significant distributions of the traits to be studied in such a way that the sample could be validly and reliably regarded as representing the distribution of the trait throughout the entire population.

A third step was the development of means that would hold other traits relatively constant in the sample during the test, and varying only the trait under test.

Having selected the sample to be studied, individuals within the group are rated for the traits previously decided upon as significant to the factor under study, the ratings are reduced to a standard type of score, and the scores are plotted or subjected to other statistical treatment. Correlations are calculated against the normal distribution of the scores to be expected in the population, and it is determined if the scores are significant and at what level, not significant, or negatively significant.

Where possible to select samples which are relatively homogeneous except with respect to the given trait under investigation, such samples will give the most valid results. Sometimes it is possible to divide the samples into "control groups" which are held without variations and "experimental groups" in which the conditions surrounding the factor under investigation may be varied as in the case of the effect of contacts with the Agricultural Agent.

Often, however, such selective sampling is impossible. In such cases, "random samples" of the population may be taken, and a number of such samples subjected to the same educational effort. Each such sample is then analyzed for the effect on adoption of one or several factors or traits separately, and the mean of the means of the samples is taken as indicating the mean for the population as a whole in each such trait or factor.

Marsh and Coleman, (18) define adoption of a practice as meaning that the farmer has tried it. However, the writers feel that too many extraneous circumstances can enter into a trial, and that adoption should be considered as accomplished only when a trial has been favorably evaluated and the practice becomes as a result a part of the farmer's cultural pattern. An incidence of borers attacking an experimental hybrid corn patch on an otherwise uninfested farm might well be due to contamination of the seed by larvae. But, should the farmer feel that it was the result of lower resistance of the hybrid, he might well reject the practice as a result of his evaluation of the trial. By the definition of Marsh, et al., there has been an adoption...the farmer tried the practice...but the trial resulted in a rejection, hence we feel that no adoption took place.

For similar reasons, it is felt that a more precise definition of each factor studied should be made and applied when comparing the results of adoption research.

III. PROCESSES IN INFLUENCING ADOPTION AND DIFFUSION

The first problem in securing adoption of a behavioral change is one of communications. Wilson (7) in 1925 classed extension methods as:

A. Personal Service, B. Propaganda, and C. Object-Lesson. He credited Propaganda with influencing 50% of adoptions, Personal Service (the County Agent) with 40%, but goes on to say that Indirect Methods, such as copying from a successful neighbor increase adoptions as high as 71%. Again, that twice as many adoptions are made by extension members than by non-members and that the chances for adoption are from 50 to 100% better if people can be induced to participate in extension practices.

In his more extensive and detailed work in 1929 (3) he provides a table of "Relative influence of extension methods in effecting adoption of improved practices, as measured by the percentages of practices influenced in connection with the adoption of 27,032 practices on 8,738 farms in 12 states." The table is reproduced below.

<u>METHOD</u>	<u>PERCENTAGE OF PRACTICES</u>
Indirect Influence	21.31
Method Demonstration Meetings	15.18
General Meetings	13.80
Farm and Home Visits	12.34
News Stories	10.27
Office Calls	6.75
Bulletins	6.52
Adult - Result Demonstrations	4.14
Junior - Result Demonstrations	2.53
Circular Letters	1.53
Radio	1.53
Correspondence	1.23
Leader Training	.92
Extension Schools	.77
Exhibits	.61
Telephone Calls	.38
Study Courses	.15
Posters	.04

These data have been corrected on the basis of 100 per cent equals total influence of all methods. He notes further that the data deals with practical application of teaching methods in the field and not with the theoretical value of the methods under ideal or laboratory conditions.

It should be noted that the first nine categories account for 93 out of 100 practice adoptions.

It is interesting to follow these original observations with data from current observations. Marsh and Coleman (18) in 1954 stated that the farmers with less education read fewer media and were subjected to less influence from agents, meetings or magazines. Lionberger (8) found that non-users of institutionalized sources of information were more likely to name friends and neighbors as sources for their adoptions of improved practices. Blackmore, et al., in 1955 (9) found that the largest group of farmers heard of practices from other farmers, while Anderson (10) in 1956 found 66% crediting other farmers as sources for initial contacts. On the other hand, Abell (11) in 1957 found that farm papers ranked first with other farmers fourth as communication media. He further observes (P. 30) that: "Those who listed neighbors as a preferred source were under 35 years of age." While Wilkening (12) found that as socio-economic status increases, less dependence is placed on other farmers.

Dealing specifically with factors affecting the acceptance and use of fertilizers in Iowa, Anderson (10) (p. 8) gives the following table of percentages of sources of information:

<u>SOURCE OF INFORMATION</u>	<u>PERCENT</u>
Other farmers	50%
Mass media (Radio-Television)	20%
Personal experience	9%
Demonstration	8%
Dealers & Salesmen	4%
Did not recall	2%

It is interesting to contrast the influence of Mass Media in this finding in 1956, where one fifth of the farmers noted it as the influencing factor with Wilson's 1929 report of only 1.53% influence by radio. Of course, the great depression, with its emphasis on rural electrification under the Public Works Administration, TVA, and other such projects, bringing electricity, hence the capability for use of mass media to many more farmers, intervened. On the other hand, it would appear from these figures that dependence on other farmers, listed by Wilson as "Indirect Influence" at 21.31% had also increased to 50% during these years at the expense of other media. This would tend to confirm the observation of Marsh and Coleman (18) (p. 15) that: "The majority of farmers, regardless of the size of the operation, said they got information from friends and neighbors." Auerbach (13) in 1956 ranks the sources of information as: 1. Agricultural Agencies and Leaders, 2. Mass Media, 3. Agricultural Supply Dealers, and 4. Friends and Neighbors. He further observes that radio received few mentions as a first source, while friends and neighbors were regarded as the most useful source of information. Lionberger (8) (p. 3) observes that: "...some farmers are inclined to accept new practices only when trusted friends have clearly demonstrated their merits."

In relation to the kind of people reached by mass media, Star (35) reports that 68% of the college educated, 43% of the high school educated and 17% of those having grammar school education reported exposure to three or more media used in the Cincinnati campaign of information on the United Nations. She concluded that the people reached were those least in need of it and that the people missed were the new audience the plan had hoped to gain.

On the other hand, a report of the relative effectiveness of

extension methods in Madison Parish, Louisiana, provides the following table of sources of information reported by farmers and homemakers as helpful in encouraging them to adopt recommended practices (37)

Percent of Farm People Reporting Method  
as Helpful

<u>Sources of Information</u>	<u>Agricultural Practices</u>	<u>Homemaking Practices</u>
Individual Methods	24.4	12.2
Group Methods	12.9	21.4
Mass Media	46.2	51.2
Indirect Methods	15.3	15.2

For both agricultural and homemaking practices, the percentage adopting practices was higher for all extension sources combined than for any single technique.

It further bears out Star's observation (35) that the cumulative effect of exposure to several media is superior to any single method not only in reaching a larger audience but in effecting change by the exposure of the individual to several media.

Further light is provided on the subject of the influence of mass media if we read together the statements of Wilkening (36) (p. 21) that: "These findings suggest that the mass media tend to provide stimulation of interest and supporting information, but other farmers tend to be the most convincing or the most continuous contact for information", with that by Copp (14) (p. 12) that: "It is contended that Mass Media are less effective in securing adoption after a practice has ceased to be an innovation.

Abell (11) (p. 8-9) observes that the channels of communication vary with the stage of diffusion, and that personal channels are more effective in reaching low income farmers. In his ranking of farmer's media

preference, he, like Auerbach, ranks farm papers first, although he also ranks printed Extension materials as a tie for this place, neighbors and friends second, radio third, oral extension as "helpful" by half the farmers, and salesmen and agricultural agents as low.

These studies tend to confirm the earlier reasoning of Wilson and Grattan (Supra, p. 3) with respect to the part played by the example of successful friends and neighbors in inducing adoption. Further light is shed on the factor of indirect influence by Rogers and Beal (15) (p. 3) who comment: "Ideas often flow from radio or print to the opinion leaders and then to the less active people." These authors also classify the first "adopters" as innovators, the next in order to adopt as early adopters, next the early majority, then the late majority, and finally the laggards (15) (p. 2).

From the high percentage of adopters who are still most greatly influenced by "indirect" influences, it would appear that, as indicated by Fanelli (16) (p. 445), there is a need for research in the relationship between participation, communication, and identification with the community. He observes (p. 443) that, if an individual is cut off from significant interaction with others, he develops private frames of reference. He also points out that "High Communicators," whom he describes as those talking to more than three persons, have the following factors in common: 1. They belong to clubs, 2. They are the most popular, 3. They are selected as group leaders, and 4. they are more apt to be pre-oriented. On the other hand, "Low Communicators," those talking to less than three persons, are also low participants in social groups (p. 441). He found no significant difference in communicators on the basis of age, sex, education, or social status. However, 84% of club members were in the upper status group.

As Copp has observed (14) (p. 10), with the many channels of communication now open to farmers, and the widespread examples of the successful adoption of better farm practices, the failure of farmers to adopt such practices cannot be laid to lack of technical information.

To find the basis for such failures to adopt, then, we must look further first into the steps in the process of adoption, then into the characteristics of individuals which affect their progress through these steps.

#### IV. STAGES OR STEPS IN THE ADOPTION PROCESS

The steps in the processes leading to adoption are important because the Adult Educator must realize that a failure to adopt may arise from failure of the institution or the agent in method or technique to fulfill the requirements of the individual at any stage or step of the process.

Blackmore (9) (p. 5) divides the process of adoption into two steps: 1. Awareness, and 2. Trial. This would appear an oversimplification. Rogers and Beal (15) (p. 1) divide the process into five steps: 1. Awareness, 2. Information, 3. Application, 4. Trial, and 5. Adoption. Abell (11) (p. 8) states that adoption goes through five stages, which he gives as: 1. Awareness, 2. Interest, 3. Evaluation, 4. Trial, and 5. Adoption.

While it should seem that the difference between the last two classifications is largely a matter of definition, let us see what processes must logically take place before a practice can be said to be completely adopted.

It would appear, as both references have agreed, that the first step is the creation in the individual or group to be influenced of an awareness of the advantages to be gained through a given behavioral change.

Exciting this awareness to interest (Rogers' and Beal's "Information") through amplification of such advantages by illustrations within the potential adopter's experience and understandable within his frame of reference is a second and most important step. This interest alone will not produce action, but must be developed further into an acceptance of the principles involved as applicable to the advantage of the individual. This acceptance must be sufficiently powerful to overcome the individual's inertia and instigate a trial (Rogers' and Beal's and Abell's "trial"). Following the trial, there must be an evaluation, in which the practical results of the trial are shown to be sufficiently akin to the anticipated advantages which impelled acceptance to be adopted as a permanent part of the individual's behavior pattern.

Thus the writers would suggest that the steps in adoption are logically: 1. Awareness, 2. Interest, 3. Acceptance, 4. Trial, 5. Evaluation, and 6. Adoption.

Media, communication and method are intimately connected with Awareness; the Adult Educator must first make the potential learner aware of the availability of knowledge. Communication and method are intimately associated with convincing the potential learner that the effort to acquire this knowledge will be compensated for by the benefits or value which will accrue to the learner, and which will thus arouse his Interest. Method and technique of presentation are intimately associated with convincing the learner that he should Accept the behavior change advocated, at least to the point of giving it a Trial. The proper conduct of the trial to forcefully illustrate to the learner the advantages to him is a supervisory responsibility of the adult educator, as is the guidance given the learner in his process of Evaluation of the results obtained. For

only when this evaluation is favorable will the advocated precept, process, or procedure be wholeheartedly adopted by the learner.

From this concept, it is obvious that there are pitfalls at every step. Conversely, if each step is accomplished completely, adoption is a virtual certainty.

#### V. CHARACTERISTICS OF ADOPTERS AND NON-ADOPTERS

From the foregoing discussion, it appears that individual characteristics of potential learners will influence strongly the methods and techniques employed by institutions and agent in achieving the adoption of advocated behavior changes. Further, that it is doubtful if the same methods and techniques will achieve comparable results with Rogers' and Beal's "Innovators" (Supra. p. 11), their "majorities" and their "laggards."

Let us examine some of the characteristics of adopters and non-adopters as developed by current research.

##### A. The Influence of Status.

##### 1. Farm Practice Studies

##### a. Socio-Economic and Related Factors

Socio-economic and related factors have been found to be positively associated with the adoption of farm practices in studies over widely distributed areas.

Marsh and Coleman (18) in a study of thirteen neighborhoods in a Kentucky county found the socio-economic score as indicated by the Sewell Socio-Economic Status Scale, Short Form, to be the only one of 21 factors studied which was positively and significantly associated with the adoption of 16 practices studied.

With education and contact with representatives of agricultural agencies being held constant successively, socio-economic score was still significant to the adoption of 14 of the 16 practices, although at reduced levels of significance.

When neighborhood type, as determined by adoption of practices score, was held constant, a relationship between socio-economic score and the number of practices adopted persisted within each neighborhood type.

Socio-economic score was found to be significantly related to the adoption of farm practices in a study of 38 rural neighborhoods in Wisconsin by Kreitlow and Duncan.

Coleman, in a study of a New York rural community found that the Sewell Socio-Economic Score was positively associated with the adoption of practices by male heads of households and of canning with pressure cookers by homemakers (40).

Sewell score was reported to be related to the adoption of agricultural practices by farmers and the adoption of home economics practices by homemakers among 600 farm families in four Louisiana parishes (19) (Table 5, p. 25).

Net income was found associated with the adoption of farm practices by Gross (20) and Gross and Tares (21).

Value of product sold was found associated with the adoption of farm practices by Lionberger (22).

The size of the farm was found to be significant in relation to adoption of farm practices by Gross (20),

Kreitlow and Duncan (17), Lionberger (22), and Ryan (23) (Table 3, p. 23), and size of farming operation significant by Coleman (18) and Lionberger (22).

Hoffer and Stangland (24) (p. 22) found that self-reliant, efficient, progressive farmers are more likely to adopt.

b. Education

All studies reviewed, which reported on the factor of educational level found this factor significant in relation to the adoption of farm practices. These studies include: Coleman (25), Gross (20), Gross and Tares (21), Lionberger (22), Wilson and Gallup (26), Wilkening (12), Copp (14), Anderson, et al., (10), Blackmore (9), Hoffer and Stangland (24), Marsh and Coleman (6), Wilson and Gallup (26). In addition, Kreitlow and Duncan (17) found a low but positive correlation between the educational levels of husbands and wives in the adoption of farm practices in 38 Wisconsin rural neighborhoods.

c. Farm Ownership

This factor is generally reported as of lower significance in the adoption of farm practices. Marsh and Coleman (18) and Gross and Tares (21) found no significant relationship between tenure and the adoption of farm practices. A compilation of reports from 10,733 farms in 17 areas of 16 states shows only a slightly more favorable adoption rate for farm owners over tenants (0.5%) which is offset by an 0.3% lower rate of adoption of home economics practices by wives of owners. (26) (p. 24).

d. Social Participation

Marsh and Coleman found that social participation score on the Chapin Social Participation Scale was positively and significantly associated with the adoption of 12 of the 16 practices studied (18). Gross (20) found that farm operators belonging to economic, fraternal, and civic orders tended to be acceptors of the McLean System of hog sanitation, while those belonging to religious organizations or no organizations tended to be non-acceptors. Kreitlow and Duncan (17) found positive correlations between social participation scores and practice adoption for farmers living in both homogeneous and heterogeneous neighborhoods in Wisconsin. Hoffer and Stangland (24) found that membership in farm organizations tended to increase the adoption rate. Copp (14) found social participation highly associated with adoption. Lionberger (8) found that users of institutionalized sources are more active socially. Wilkening (12) found that participation in farm organizations is significantly associated with acceptance. Rogers and Beal (15) found that the behavior, beliefs, and values of an individual are all firmly grounded in the group to which he belongs, also that neighbors serve as a reference group and may have a positive or negative reaction.

e. Neighborhood

Marsh and Coleman (18) found support for a hypothesis that the extent to which farm operators adopt recommended practices is, in part, a function of the operator's

neighborhood of residence. When rural neighborhoods were grouped into "high," "medium," and "low" categories with respect to practice adoption scores, neighborhood differences remained when socio-economic score, value of products sold, Membership in Farm Bureau, and personal contact with the agricultural agent were successively held constant. This supports the Missouri study by Lionberger (8). Kreitiow and Duncan (17) found that heterogeneous neighborhoods produced more adoptions than homogeneous neighborhoods. Copp (14) found that strong neighborhood ties deter adoption, but feels that local group identification is a minor factor in adoption. Marsh and Coleman (18) found that neighborhoods vary in adoption, Rogers and Beal (15) found that neighbors often serve as reference groups and may have either a positive or negative reaction.

f. Attitude

Copp (14) views adoption as largely a matter of behavioral predisposition. Rogers and Beal (15) point out that behavior, beliefs, and values of an individual are all firmly grounded in the group to which he belongs. This bears out the results of Lionberger's Missouri study (8) where a favorable community attitude toward progress, change and development increased adoptions.

It should be noted that the inter-relationships among status-related factors makes it difficult to ascribe any causal connection between any one or any

combination of factors, such as social class or socio-economic score, and the adoption of farm practices. None of the studies reviewed attempted any factorial analysis more complex than the successive holding constant of a series of factors. In the absence of such evidence the relationships reported cannot be considered statistically as causal.

2. Health Practices and Status Factors.

Smith (27) studied health practices in three Indiana counties. The table below summarizes his findings with relation to status factors.

FACTORS	PRACTICES ADOPTED				Favorable Attitude Toward Hospitalization Insurance
	Pediatric Care	Prenatal Care	Children's Dental Checkups	Hospitalization Insurance	
1. Socio-Economic Score	Very Signif.	Very Signif.	Very Signif.	Very Signif.	Not Signif.
2. Highest grade of school completed by informant	Very Signif.	Very Signif.	Very Signif.	Very Signif.	Not Signif.
3. Social participation score of family members	Not Signif.	Signif.	Very Signif.	Not Signif.	Signif.
4. Family income	Signif.	Not Signif.	Very Signif.	Very Signif.	Not Reported

As in the Marsh and Coleman study of adoption of farm practices (18), a composite socio-economic status score is the only factor significantly related to the adoption of all practices studied. This may be indicative of the value of such a scale for the prediction of the adoption of recommended practices.

Koos (28) in his study of a New York community found decided class differences in the use of preventative health examinations, possession of health insurance, the use of the dentist and the use of non-medical personnel. In all but one case the difference favored the upper class group. (p. 107, pp. 112-117). He notes through a case study analysis that some of these differences may be attributed to economic factors, but that there are decided differences in the values placed upon such factors as having healthy teeth among families within the same class (p. 125).

The extent to which observed differences may be attributed specifically to cultural or to economic factors cannot be determined from the studies examined.

3. Social Class and Selected Cultural Innovations.

Graham's study (29) of the acceptance of five cultural innovations by New Haven, Connecticut families found that the acceptance of any single innovation was not an index of the acceptance of any other. No one class was conservative toward all five innovations and, in the case of the acceptance of health insurance, no one class was more conservative than any other. These findings suggest that the relationship between social class or socio-economic status and the adoption of cultural innovations may be complex.

4. Other Factors Examined for Effect on Adoption.

a. Age.

Marsh and Coleman (18) found that age was negatively associated with the adoption of seven of the sixteen practices studied and not significant as related to the other nine. They state: "In each case where there is an association the highest rate of adoption is in the group under 35 or the 35 to 44 group." Gross and Tares in their Iowa study found a positive association between age and the adoption of one practice, a negative association between age and the adoption of three practices at the 1% level of significance, and negative association between age adoption of six other practices at lower levels of significance. Among six studies in Sociological Research on the Diffusion and Adoption of New Farm Practices (30) (p. 3), four were reported to have found a negative relationship between age and adoption of practices, while two reported no significant association.

Reports from studies in five areas involving 1,978 farmers showed that a slightly higher percentage of men in the 36 to 40 and the 41 to 45 age groups reported adopting practices as the result of extension teaching than from either older or younger groups. For 2,395 homemakers in seven areas the high point of adoption was in the 31 to 35 age group, but there was very little difference in practices adopted due to extension (26) (Table 1, p. 22).

Erasmus (31) reported in a non-empirical study of agricultural change in Haiti that young adults and adolescents showed greater receptivity. "In the case

of the 4C and Future Farmers clubs there was no risk involved for the individual. The young adult could be more easily taught."

Pederson (32) notes that some of the slight differences in adoption rates due to age may be attributed to the fact that older farmers are approaching retirement and are consequently less motivated to accept new practices than young farmers who expect to operate their farms for some years to come.

Rogers and Beal (15) show a relationship coefficient of .06 between age and adoption, below the level of significance. Wilkening (12) (p. 45) states that age shows no consistent relationship with adoption. Copp (14) (p. 13) agrees that age is not significant to adoption.

On the other hand, Lionberger (8) (p. 7) states emphatically that: "Age as a characteristic of diffusion is important. Young farmers are more receptive to change." Blackmore (9) (p. 4) also states that: "As a rule older farmers adopt fewer practices than the young."

On the basis of the literature, it would appear that, if age is a factor in the acceptance of or resistance to change as evidenced by adoption, it is of relatively low significance.

b. The Influence of Social Roles

(1) Leadership roles

Lionberger (8) found that in one Missouri

community farmers consistently went to those with higher practice acceptance scores than they had themselves for information and advice concerning farming practices. The persons sought tended to be those in contact with the agricultural agencies to a greater extent than were the seekers. He observes that: "The tendency to look up the competence scale may be expected to prevail where alertness to new developments in farming is an important status factor as it is in this community." Marsh and Coleman (18) found that: "If residents of a neighborhood place a high value on innovations (as indicated by a high rate of adoption) they will go to innovators for information but, on the other hand, if residents are resistant to innovations, the leaders whose advice is sought are unlikely to be innovators. This tends to confirm the observations of Rogers and Beal (15) (Supra.p. 11) regarding the channels of communication on recommended practices.

(2) Family roles

Kreitlow and Duncan (17) found a slight negative relationship between an "index of familism" and (a) the acceptance of farm practices, and (b) favorable attitudes toward progressive school practices, as well as (c) organizational participation in 38 rural neighborhoods in Wisconsin. Again, in 19 neighborhoods which were homogeneous with respect to ethnic

and religious background the negative relationship was higher. Wilkening (12) in his study in the North Carolina Piedmont found those with higher adoption scores for farm practices tended to be less dependent upon neighborhood and kinship ties than those with low adoption scores. Copp (14) (p. 22) found that strong neighborhood ties deter adoption, but concludes (p. 23) that local group identification is a minor factor in adoption.

No evidence of the particular influence of specific family roles assumed by individuals upon the acceptance of innovations was found in any of the studies reviewed.

(3) The role of the innovator

The agent for change, particularly when he is from outside the immediate group to be changed, has a particular and often difficult role to play. Studies of cultural change in cross-cultural situations show that understanding this role can be crucial to the success of adoption of innovations. The selection of personnel who were sincere, honest and friendly in their dealings with villagers did much to facilitate the acceptance of green manuring in the Etawah District in India (6) (pp. 63-66). Dobyms (33) relates the incident of the spokesman for an Indian village council who had opposed drilling wells being caught by the village filling his "ola" at the well. The next day the entire village started using the well. The "role"

was made possible because the administrator had accepted the decision of the council and drilled the well several miles from the village. Marsh and Coleman (18) found that the greater the number of contacts with the agent for change, the more adoptions resulted. This finding parallels that of Rogers and Beal (15). Wilkening (12)(p. 61) states that contacts with the agent are highly associated with adoption, and Copp (14)(p. 83) states: "...attending county agents' meetings were highly associated with adoption." Anderson (10)(p. 9) credits Farm Bureaus with 60% of adoptions, and Blackmore (9)(p. 8) indicates that the best source of information is the County Agent, crediting him with 41 out of 100 adoptions. On the other hand Abell (11)(p. 15) states that: "Agricultural Agencies rank low as a communication media." However he indicates (p. 26) that talks with county agents were listed as effective by people of high educational level. According to Lionberger (8)(p. 9): "Users of county agent service had more education than others." This confirms Rogers' and Beal's observations on the flow of ideas to the opinion leaders, thence to the less active people (15)(p. 3), as well as those of Marsh and Coleman (18)(p. 14) that the less education, the more a farmer depends upon friends and neighbors for information.

In this connection, an interesting hypothesis is

proposed by Lionberger (8) (p. 3) who observes: "Part of the solution may be in the Power Structure in which Adult Educators operate so that the latter will not be penalized for directing their attention to people with lesser influence but greater need. Educators must take cognizance of this power structure and plan accordingly."

B. Motivating Factors in Adoption

1. Economic Motivation

Gross and Tares (21) note that acceptance of practices involving relatively little cost to the farmer were most clearly discriminated by the factors studied. Koos (28) indicates through case study that economic factors do operate as barriers in the acceptance of health practices (p. 124). None of the studies reviewed isolated economic forces either as incentives or deterrents to the adoption of cultural innovations.

2. Status Incentives

No direct evidence was found in the literature of the operation of status incentives. The findings of certain studies suggest that, where adoption of practices is consistent and compatible with the value structure of the community, adoption may be motivated by a desire to improve the individual's social status. Such implications may be assumed from Kreitlow and Duncan (17), Marsh and Coleman (18), Pederson (32), and Wilkening (34). While Graham (29) notes that status is not a reliable index of individual adoption of

a specific innovation, his study tends to show acceptance or conservatism toward certain specific practices appear to be class related. To what extent this is due to desire for conformity is not shown.

3. Influence of the Primary Group

See "Neighborhood" (Supra. p. 17) and "Family Roles" (Supra. p. 23).

4. Personality Factors

Wilkening (12) found evidence among farmers in the North Carolina Piedmont community to support the hypothesis that the adoption of farm practices is associated with the acceptance of change in church, school and motion pictures. He found the belief that much formal education was essential for boys who intend to follow farming as a vocation was highly associated with the adoption of improved farm practices. Beyond these findings there is little evidence in the studies reviewed relative to psychological factors and their effect on adoption.

5. The Influence of Values

Dobyns (33) reports that thirst ultimately overcame the resistance of tradition and superstition associating evil with "holes in the ground" so that, at first by stealth but later as an accepted procedure, wells provided by the Indian Administrator were used. This bears out John Dewey's observation that: "At critical moments of unusual stimuli the emotional outbreak and rush of instincts dominating all activity show how superficial is the modification which a

rigid habit has been able to effect." (1) (p. 741).

6. Influence of Immediacy of Application to Life Situation

Erasmus (31) found a clear pattern emerging from a survey of agricultural change in Haiti: "The relatively greater acceptance of innovations providing immediate benefits to the farmer compared to motivations of long range benefit. First to be accepted were plants which resulted in greater yield. Next to be accepted were improved cropping practices.....Refinements such as composting, prevention of burning, crop rotation, seed selection, and soil conservation met with little or no acceptance."

7. Influence of Individual Interest

Star's report (35) of an information campaign to promote greater knowledge of the United Nations in Cincinnati found that lack of individual interest was a major barrier to the spread of information. This proved to be true among those having much, little, or no information about the subject on the pre-test. Those who showed little interest learned very little despite an all-out campaign of information, using all available media.

The paucity of evidence found in the literature regarding the factor of motivation for the adoption of innovation points to a major area of needed research.

C. Adoption of Innovations as a Function of Socio-Cultural Systems

1. The Influence of the Content and Configuration of the Culture

Pederson (32) compared the acceptance of recommended practices: 1. in live stock raising and the handling of livestock

products; 2. in specified cropping practices, and, 3. in the use of power equipment on specified operations among Danish and Polish farmers in two ethnic groups constituting "cultural cores" in Clark County, Wisconsin. He reports: "For every trait measured the Danish farm operators exceeded the Polish farmers in the proportion who have adopted the selected recommended practices, though the difference between the two groups is not statistically significant for each practice. Furthermore, for each of the three groups of practices measured, the Danish farmers adopted practices to a significantly greater extent than Polish operators." He also found significant differences between native-born and immigrant farmers in both ethnic groups in the adoption of cropping practices and the use of power equipment. Polish native-born farmers were superior to Polish immigrants in the adoption of live stock practices. For all three groups of practices, the differences between Polish immigrants and native-born Poles exceeded the differences between Danish immigrants and native-born Danes. He notes that some of these differences may be due to age differentials. Differences in educational level and in formal participation favoring the Danish group, together with an historical and anthropological analysis of the culture of the two groups lead Pederson to the conclusion that: "...the culture of the Danish group facilitates the introduction of new ideas, whereas the culture of the Polish groups tends to perpetuate the status quo."

Kreitlow and Duncan in a study of 38 rural neighborhoods

in Wisconsin (17), matched in pairs with respect to seven factors one neighborhood with homogeneous and one with heterogeneous religious and ethnic characteristics. They found significant differences in the adoption of selected educational programs and practices. Programs studied were:

1. opinions and attitudes toward school practices and programs;
2. the adoption of recommended farm practices, and
3. participation in formal organizations.

Wilkening's findings (12) that attitudes of acceptance of one type of change tended to be associated with acceptance of other types of change have been previously noted (Supra. p. 24).

In a study of the acceptance of television, Graham (41) found support for the hypothesis: "The more closely the behavior demanded for use of an innovation is compatible with the structure of the culture prior to its introduction, the greater the chances of its acceptance." He states: "An analysis of television revealed that the cultural equipment required for its use included average education, a minimum income, and a penchant for passive recreation of the spectator kind." Acceptors of television were found to differ significantly from non-acceptors in having lower weekly incomes, having completed fewer years of school, hours of radio listening, and greater movie attendance. Other variables examined but found not significant to the adoption of television included: amount of savings and life insurance; degree of past installment buying; home ownership or rental; dwelling type; price, type, and age of automobile owned, and appliance

ownership. Television was used as a recreational device and its acceptance was therefore most closely associated with previous recreational patterns. These findings support the contentions of television producers concerning the type of program and the intelligence level to which it must be directed to maintain the interest of the mass audience which is demanded by commercial sponsors.

Further support for Graham's hypothesis is found in reports of cultural change in cross-cultural situations. The ready acceptance of the steel ax by the Yir Yorant aborigines of Australia reflecting the important utilitarian and ritualistic role played in their culture by its predecessor, the stone ax, contrasts with the failure of this people to accept the canoe for lack of cultural background in its use, even though they understood its use and had the materials to make it. (6) (pp. 82-85). Failure of a county agent to take into consideration those aspects of a culture associated with food preparation and consumption again caused the ultimate failure of an apparently successful attempt to introduce hybrid seed corn into a Spanish-American farming community (6) (pp. 33-40).

2. The Influence of the Structure and Cohesiveness of the Culture-Unit

It is difficult to separate the influence of the content from the structure of the social unit. Kreitlow and Duncan (17) present at least indirect evidence that the more traditionally organized "homogeneous" neighborhood is relatively

resistant to change. Wilkening's findings (12) concerning the relation of dependence upon primary group and kinship ties increasing in inverse ratio to educational level also support this view. Evidence from cross-cultural situations also tends to support this hypothesis in that efforts to impose an alien pattern of social organization on an existing culture inhibit and retard the acceptance of change (6) (pp. 165-180; 149-164; 204).

3. The Influence of Social Satisfaction and Social Mobility

The only reference, even indirect, to the effect of social satisfaction and social mobility on adoption appears to be Koos' report (28), in which he speaks of a situation with respect to medical doctors and chiropractors: "All evidence points to the chiropractors' willing acceptance of the poor as patients; there was considerable feeling on the part of Class III (lowest economic class) people that physicians did not want as patients....whether this feeling was based upon fact or was simply part of the whole feeling of being below in social status is a subject of further research."

D. Influence of the Diffusion of Knowledge on the Adoption of Cultural Innovations

1. Influence of Different Types of Innovations on the Rate and Process of their Adoption

Erasmus (31) found that innovations having greatest immediate benefit had greater acceptance (Supra. p. 28).

Lionberger (8) found that for information relating to existing practices, all groups made greater use of friends

and neighbors, while for information on technical questions, greater use was made of institutionalized sources. Again, for information about new or comparatively new farming practices, newspapers and farm journals were the most important source for all groups.

2. The Impact of the Adoption of Cultural Innovations upon Socio-Cultural Systems.

The clearest evidence of the impact of the adoption of innovations upon existing culture comes from reports of cross-cultural contact. The introduction of the wagon in a Papayo Indian village: "not only displaced some parts of the technology and established new techniques and specialities, it also resulted in important shifts in the division of labor, had far reaching effects on the economy, became for a period a strong factor for greater community solidarity, and influenced the relation of the Papayos with surrounding people." (6) (p. 32).

Dobyns (33) reports that the adoption of the Indian well as a source of water caused the gathering of water to become an exclusively male affair, completing a change which had begun with the long trips necessary when nearby sources from which the village women had previously gathered the water dried up. It was justified by a fiction that women were to be protected from contact with the evil spirits which might emerge from the well.

E. Factors Involved in Decreasing Interval Between Initial Awareness of Cultural Innovations and their Adoption

1. Effect of the Low Cost Experiment

Ryan (23) states that a major factor in the rapid diffusion of hybrid seed corn in Iowa was the ability of the farmer to experiment with a "trial run" of hybrid seed on his own land at small cost to himself. He observes: "If the 'trial run' process is as important to farmers as it would appear from these data, then the possibility of 'experimentation' with a new technique offers it favorable prognosis for rapid spread." Thus it would appear that Extension has awakened to the advantages of an old tried-and-proved sales technique, the "try-before-you-buy."

2. Effect of Contact with Institutionalized Sources of Information

See "Role of the Innovator" (Supra. p. 24)

3. Effect of Contact with Various Media

See "III. Processes of Influencing Adoption and Diffusion" (Supra. pp. 7-12)

F. Summary of the Characteristics of Adopters and Non-Adopters

Adopters

Non-Adopters

1. Rated as Significant by Majority of Studies Reviewed

High socio-economic status score	Low socio-economic status score
High educational level	Low educational level
High social participation score	Low social participation score
High in community leadership	A follower rather than a leader
High in progressive, independent thinking	High in reverence for superstition and tradition
High in self-reliance	Uncertain and hesitant

Uses institutionalized sources of information regularly	Depends on friends and neighbors for advice
Willingness to risk own money in recommended trial	Will utilize only practices demonstrated successful by others
Willingness to accept change in church and school	Unwillingness to change status quo
Reads farm papers, participates in extension and other organized activities, curious	Depends on radio, TV, movies for recreation and information
Good communicator	Lacks ability to express self

2. Rated as Low Positive Correlation or Doubtful

Youth	Age
Ownership of property	Tenants
Desire to increase social status	Unwillingness to change status quo
Purchases by cash	Heavy installment buyers
Amount of insurance, health insurance, hospitalization, etc.	Lack of preparation for emergencies

VI. EVALUATION OF ADOPTION RESEARCH AND FINDINGS IN TERMS OF

ADULT EDUCATION

Since the Adult Educator is an "agent for change" in the behavior patterns of the learners who are his clients, the adoption of the behavior changes he advocates into the cultural pattern of the learner is the ultimate justification of his efforts. Adoption is, therefore, the discrete measurement of the success of his efforts.

From these studies, we have seen that the Adult Educator has manifold problems in each step of the process leading to adoption of advocated changes.

In the initial step of awareness, he has the problem not only of selecting the media which will reach the audience he wishes to inform, but

also the method which will make the awareness register on the consciousness of the potential learner with sufficient strength so that he will at least give conscious attention to the arguments leading to the next step...the development of interest. It would appear to the writers that, in this phase of development, much could be learned by the Adult Educator from the research of industry into the development of interest in specific markets in its products. For, has not the Adult Educator a product to "sell" in the form of knowledge just as truly as a manufacturer of farm implements has in his equipment? Star (35) has shown that exposure, even to multiple media in concentrated form (and, having been through the campaign to which her report alludes, one of the writers can attest from personal experience to its intensity and concentration), is not sufficient. Method and technique must be further developed to forcefully penetrate the potential learners' consciousness; to make him, in fact, "Stop, Look, and Listen." Much research along both sociological and psychological lines is indicated in this field alone.

Having accomplished the factor of making the potential learner conscious of the availability of knowledge, the Adult Educator must show the prospect his own, particular, and individual need for the specific type of knowledge presented. Awareness of availability, plus awareness and acknowledgment of an individual need for the knowledge available is the first step in arousing interest.

At this point, the factor of competition of other interests for the time and attention...and perhaps the money...of the prospective learner enters the picture. To induce the next step of acceptance, the Adult Educator must convince the prospect that the value to him of the knowledge to be gained exceeds the value of any other activity in which he

might engage. Since Adult Education is "marginal" (38), an "extra" beyond vocational and recreational needs, this step of transforming acknowledged need into action...of making the "needer" a "wanter," in terms of sales psychology...is one of the hardest hurdles for the Adult Educator (or the salesman) to jump. For in Adult Education the competition for otherwise leisure time is intense and powerful. It encompasses persuading the prospect to forego his favorite recreational activities...the evenings at home with his family, his bridge or poker games, his favorite TV programs, and other well ingrained habits...in the pursuit of an intangible and perhaps ephemeral knowledge. In the case of vocational subjects, such as the adoption of improved farm or homemaking practices, the tactics known in salesmanship as "pressure selling," concerned with economic advantage may be used effectively. With cultural subjects, these tactics are inapplicable, and those of the "soft sell," involving motivation through appeal to motives of personal status improvement, recognition, respect, affection, and power ...all intangibles, offer the only avenue to acceptance.

It is axiomatic that the further the individual progresses beyond the satisfaction of the basic physical needs for food, water, shelter, air, sleep, and sexual satisfaction, the more powerful become the urges of the higher needs.

We have only to look at the summary of the characteristics of adopters and non-adopters as developed by the research studied (Supra. p. 34) to see that the tendency to adopt progressive behavior changes appears to be directly proportional to the security of the individual from anxiety concerning the satisfaction of the basic needs. The growth of enrollment in Adult Educational enterprises in recent years is indicated by these

studies on adoption to be predicated on a larger proportion of the population being freed from the anxiety of satisfying the basic or survival needs.

The salient fact that in every study reviewed socio-economic status stood out as the one very significant factor in adoption tends to bear out this hypothesis. It would further tend to question Lionberger's observation (8) (p. 3) with respect to the effect of the "Power Structure" under which Adult Educators operate. It would appear that the development of acceptance of change in behavior patterns is less a function of the effort of educators than it is a function of the sociologist, economist and politician in increasing the distance between the ability of those lower on the socio-economic status scale to satisfy basic survival needs. Freed from this anxiety, they are also free to turn their attention and energy to the satisfaction of the higher social needs. Methods or techniques developed to induce acceptance of progressive behavior changes at lower socio-economic levels must be powerful, indeed, to compete with anxiety for the satisfaction of basic survival needs.

Even when acceptance has been induced in the prospect, when the "needer" has himself recognized the need and has become a "wanter," the Adult Educator still faces a problem in overcoming the ingrained inertia of the individual in inducing him to try the recommended practice or changed behavior. The old saying that: "The pathway to hell is paved with good intentions" is distinctly operative here. Not only the pressure of other interests, but also the lethargy characteristic of the human organism are operative in this situation. Research is needed in effective ways of blasting the "want" into action...getting the name on the dotted line."

But the Adult Educator's responsibility for progressive behavior change does not end with the prospect's acceptance and trial. He must see that the results of the trial prove the advisability of the adoption of the proposed change into the cultural pattern of the prospect. In other words, "if the product fails to meet the salesman's claims, the prospect wants his money back," or the behavior change fails to be adopted into the learner's permanent cultural pattern. More research is needed into effective trial and evaluation procedures to insure permanent adoption. Adult Educators cannot accept Marsh and Coleman's definition of adoption (18) as meaning that "the farmer has tried it"; it must be tried and be evaluated as successful.

The research reviewed points the way for reaching, interesting, securing acceptance, trial and evaluation for adoption of progressive cultural changes, particularly the vocational practices in agriculture and homemaking.

There appears to be little available on the adoption of cultural matter, or of practices in other fields. It would appear that discrete factors affecting behavior changes could be developed in cultural educational procedures which could be followed for evidence of adoption as a means of evaluating other adult educational fields. Research is needed in this field.

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