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ABSTRACT

Illinois demonstration centers were established as change agents for the improvement of district programs for gifted children. The purpose of this study is to ascertain what factors operate within a demonstration process to influence visiting school personnel to initiate innovations in their schools. Three instruments were administered and factor-analyzed, and the factors entered in a multiple correlation analysis with the criterion variable being the trial adoption of an innovation. The main factor associated with administrators' adoption of an innovation is outside assistance. For teachers, the primary factors are those attributes of the demonstration that suggest how well the program will fit into the structure of their teaching environments. (A related document is EA 003 309.) (Author/MLF)

DEMONSTRATION PROCESS FACTORS LEADING TO ADOPTION OF INNOVATION

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DEMONSTRATION PROCESS FACTORS LEADING TO ADOPTION OF INNOVATIONS

An attempt was made to determine what factors operate within the demonstration process to influence a visitor to adopt activities he has seen demonstrated. Variables examined here include kind and amount of information given to the visitor, the source of information, conditions surrounding the demonstration, the visitors' perception and valuation of the demonstrated activities, and reasons for adopting or not adopting. The study asks three questions:

1. What factors of visitor perception and conditions of demonstration are associated with individual change as a result of seeing a demonstration?
2. What is the relative importance of these factors among school personnel who try out an innovation?
3. What differences exist between teachers and administrators?

Data Collection

These demonstration centers are in school districts that have successfully been accepted as possessing exemplary programs which are suitable for demonstration. The variety of demonstrated activities range from music and creativity programs to Individually Prescribed Instruction and from team teaching to "new curricula." The accepted school districts then appoint demonstration directors whose main responsibility is that of a change agent -- to influence visiting teachers and administrators to become aware of his demonstration classes, to accept demonstration activities as relevant and to implement them in their own schools.

The visitors come from reimbursement schools. These schools (approximately 400) receive money from the Illinois Gifted Program to develop local gifted programs in their districts. The demonstration centers are to supply the inspiration and guidance necessary for program development.

Approximately 6000 visitors observed demonstration classes during the 1968-69 school year at 21 centers scattered throughout the state of Illinois. Of this number 3000 were teachers, 500 were administrators, mainly principals (the remainder were college students and professors, board members, parents, etc). While almost 600 teachers and 100 administrators completed the Visitor Questionnaire administered at the center, over 900 teachers and 200 administrators completed the Post Visit Questionnaire they received in the mail (60% return).

Data Analysis

A principal components analysis with a varimax rotation was performed on the Visitor Questionnaire and six factors were extracted for administrators and teachers.

Factor	% of Variance	Administrators
(1)*	23.0%	Motivational Value of Program--Humanitarian, motivating, socially valuable, democratic, enjoyable.
(2)*	22.0	Appropriateness of Program--Appropriate to all, interesting for all, precise.
(3)	14.2	Feasibility--Space, facilities, funds, personnel available in home district.
(4)*	14.0	Ease of Implementation--Simple, easy to teach easy to evaluate.
(5)	13.5	Prima Facie Evidence of Operationability--Students and teachers enthusiastic, cost discussed.
(6)*	13.3	Relevance of Program--Morally, socially valuable, requires reasoning, socially oriented.

Factor	% of Variance	Teachers
(1)*	26.0%	Motivational Value of Program--Socially valuable, enjoyable, interesting to all.
(2)*	24.0	Progressivism of Program--Democratic, progressive, humanitarian.
(3)	14.5	Feasibility--Space, facilities, funds, personnel available in home district.
(4)*	13.0	Ease of Implementation--Easy to evaluate, easy to teach, simple.
(5)	12.5	Prima Facie Evidence of Operationability--Given enough information, talked with teachers and students.
(6)*	10.0	Feasibility Explained--Cost discussed, how to get materials explained.

*Factor derived from semantic differential

A principal components analysis with a varimax rotation was then performed on the Post Visit Questionnaire and six factors were extracted for administrators and teachers:

Factor	% of Variance Accounted for	Administrators
(7)	23.3%	Personal Follow-Up--The visitor requested and received personal help from the demonstration center for his district. For example, assistance with in-service training sessions, help in starting own program, assistance with student selection, assistance with curriculum development.
(8)	21.0	Reasons for Adopting--Able to adopt parts, without necessarily adopting the entire activity, able to use on a limited basis, teachers would accept the change, time spent would be well used.
(9)	15.6	Reasons for Rejecting--Not enough facilities, staff, money, schedule changes too complex.
(10)	14.6	Gifted Program Involvement--Involved last year, this year, etc.
(11)	13.3	Age and Experience--Age, years teaching, when last year of education was completed.
(12)	12.2	Materials Follow-Up--Requested and received materials and lesson plans.

Factor	% of Variance Accounted for	
(7)	23.0%	Reasons for Adopting--Same as Administrators (8).
(8)	21.4	Follow-Up--Same as Administrators (7) and (12).
(9)	18.0	Reasons for Rejecting--Same as Administrators(9).
(10)	14.2	Subject and Grade Level Taught--Science, High School high; Language Arts, Elementary low.
(11)	12.0	Gifted Program Involvement--Same as Administrators (10).
(12)	11.4	Age and Experience--Same as Administrators (11).

Again there was little difference between teachers and administrators. The two factors accounting for almost half of the variance were follow-up by the demonstration center personnel and the reasons visitors gave why certain activities could be accepted. (The main reason being the ability of an activity to be used on a limited basis).

To find out which of these factors were most important an additional statistical step was taken. After undergoing a varimax rotation, the 12 factors for teachers and 12 for administrators were entered into a stepwise multiple correlation analysis with the criterion variable of adoption: the visitors' written examples of innovations attempted as a result of their demonstration center visit. Only those school personnel who completed both a visitor and a post visit questionnaire were included in this stage of the analysis. The final "N" included 371 teachers and 82 administrators. This analysis identified seven factors which are the most critical for adoption since they account for the largest amount of the variance. These factors appear in italics in the table on the following page.

TABLE 1 PRINCIPAL FACTORS INFLUENCING DEMONSTRATION CENTER VISITORS

VISITOR QUESTIONNAIRE				POST VISIT QUESTIONNAIRE			
Administrators		Teachers		Administrators		Teachers	
1. Motivational value of program (socially valuable, enjoyable, motivating)	23%	1. Motivational value of program (socially valuable, enjoyable, motivating)	26%	1. *Personal follow up (see page 23)*	23.3%	1. *Reasons for adoption*	23%
2. Appropriateness of program (appropriate for all, precise)	22%	2. Progressiveness of program (democratic, progressive, humanitarian)	24%	2. Reasons for adopting (see page 28)	21%	2. Personal follow up	21.4%
3. Feasibility (space, funds, personnel available)	14.2%	3. Feasibility (space, funds, personnel available)	14.5%	3. Reasons for rejecting (see page 29)	15.6%	3. *Reasons for rejecting*	18%
4. Ease of implementation (simple, easy to teach and evaluate)	14%	4. Ease of implementation (simple, easy to teach and evaluate)	13%	4. Gifted program involvement	14.6%	4. *Subject and grade level taught*	14.2%
5. ***Prima Facie evidence of operational program (enthusiasm by teachers and pupils, cost discussed)*	13.5%	5. Prima Facie evidence of operational program (able to talk with teachers; students, given information)	12.5%	5. *Age and experience*	13.3%	5. Gifted program involvement	12%
6. Relevance of program (morally, socially valuable, requires reasoning, socially oriented)	13.3%	6. Feasibility explained (cost discussed, how to get materials explained)	10%	6. *Material follow up (received lesson plans and other materials)*	12.2%	6. Age and experience	11.4%
	100%		100%		100%		100%

*Percentage of variance accounted for among these particular 6 factors
**These factors in italics are the most critical for adoption.

The four factors that pertain to administrators are:

Administrators	% Variance Accounted For
Personal Follow-up	17%
Prima Facie Evidence of Operation-ability	6
Materials Follow-up	4
Age and Experience	3
	30%

The most critical factors for teachers are:

Teachers	% Variance Accounted For
Reasons for Adopting	18%
Subject and Grade Level Taught	2
Reasons for Rejecting	1
	21%

For administrators the main factors associated with adopting an activity from a demonstration center are follow-up help from the center and the administrators' judgemnt (based on enthusiastic teachers and students) of how well the program works. This follow-up is of two kinds--personal or material. Personal follow-up is by far more important than simply the sending of material. Together the two kinds of follow-up comprise two-thirds of the explained variance. The younger and less experienced administrators are also more likely to adopt an activity, a well-documented phenomenon.

Of little importance are the perceived "motivational value," "appropriateness," "worthiness" of the program or the perceived ease of implementation, feasibility, reasons for adopting or rejecting, or involvement with the home pro-

gram, although it may be that a program was rejected on that basis. The perceptions of intrinsic merits of the demonstration program are less important than the availability of outside help.

For the teachers the important variables were even fewer. The overwhelming one is the reason for adoption--time spent would be well-used; able to adapt parts; administrators would accept change; enough facilities available; cooperation from other teachers could be obtained. Most of these reasons concern how well the new activity will fit into the structure of the teacher's world. Of slight importance is the subject area and grade level of the teacher. Science and high school teachers were most likely to adopt while language arts and elementary teachers were least likely. Again the factors indicating intrinsic evaluation of the demonstrated program were not important. In this case not enough follow-up from the demonstration centers occurred to judge its importance for teachers. The fact that visitors value the demonstration programs highly has little relationship with later adoption. *Situational constraints in the adopting district seem to be of greater importance than the intrinsic characteristics of the demonstrated program or the process of demonstration itself.*

Implications

Because these demonstration centers were predicated on the basis of the Research and Development paradigm, this study calls into question the efficacy of all Research and Development models such as the Clark-Guba model. In general terms, Havelock (1969) sees Research and Development models as having five features:

1) There is a rational sequence of activities which moves from research to development to packaging.

2) Planning must occur on a large scale.

3) A division of labor separates roles and functions in the overall process.

4) A passive consumer awaits acceptance of the innovation if it is properly done.

5. A high initial development cost is necessary to eventual success.

According to the Research and Development model of change as exemplified by the Clark-Guba paradigm, demonstration centers must be regarded a success because they meet most of the criteria of the Clark-Guba model. In short, visitors were informed and were convinced that the programs they saw operating were worth adopting. It should follow that visitors would adopt the programs--but they did not. That follow-up should be more important to adoption than the nature of the demonstrated program suggests something may be wrong with the model itself.

While most people worry about the cost, and while both rational sequence and a division of labor lead to serious problems, the fatal flaw in the model is assuming that the consumer is passive. If Havelock (1969) is correct, research and development models of change assume a passive user population which is shaped by the dissemination process itself. In fact, of far greater importance are the variables controlling the would-be adopters everyday world in his home district. The individual is caught in a powerful social web that determines his behavior more than do his individual impressions gleaned at a demonstration visit. The variables that influence whether he will adopt are those that shape his home environment. The findings in this study are consistent with the "social interaction" change model which sees change as a result of the social relations network within the adopting unit. As Havelock notes, only this change model has substantial empirical verification.

The Research and Development model proffers the promise that if one can only invent the right packages and disseminate them in the right way, change will occur. It focuses attention away from the complexities of changing a social system toward the simpler and more comfortable problem of inventing a new device--building a better mousetrap. As exemplified by the Illinois centers, the Research and Development model can produce change but only small scale change at considerable cost, change only in the interstices of the system that leaves the total structure unaffected. Although one cannot disprove a paradigm with one case, we are now rich in experience and data to seriously challenge the whole Research and Development model of change.

For the full treatment of this data, see The Demonstration Center (House, Kerins, and Steele, 1970). For alternative change models see Planning for Innovation (Havelock, 1969) which presents a "linking model" and The Development of Educational Programs: Advocacy in a Non-Rational System (House, Steele, and Kerins, 1970) which presents a conflict model.

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1. Havelock, Ronald G. et al. Planning for Innovation Through Dissemination and Utilization of Knowledge. Ann Arbor, Michigan: Center for Research on Utilization of Scientific Knowledge, University of Michigan July, 1969. (Chapter 11, p.5)

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