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ABSTRACT

The effective utilization of research and development products ranks as one of the top priorities in American public education. The document contains two concept papers by recognized authorities on knowledge utilization activities: A Diffusion Mechanism for the Center for Vocational and Technical Education, Egon G. Guba; and Alternative Diffusion Strategies, Henry M. Brickell. The first paper begins with a review of diffusion models: considers six tactics including telling, showing, helping, involving, training, and intervening; and offers an explication of a diffusion program for the Center as its major thrust. Advocated within the program as mechanisms for effective diffusion are: (1) a distributor relations division; (2) a warranty division; (3) a training division; (4) a promotions division; and (5) a market studies division. Each division's functions are outlined and evaluation criteria are reviewed. The second paper considers 10 images of the practitioner (regarding educators as adopters of innovations); implications of these images for diffusion; characteristics of the adoption setting; characteristics of the innovation, with a summary of desirable characteristics; and diffusion tactics. This paper concludes with alternative diffusion strategies describing sample case strategies for the adoption of an innovation in an educational setting. (NH)

Occasional Paper No. 2

CONCEPTUAL STRATEGIES FOR UTILIZING RESEARCH AND DEVELOPMENT PRODUCTS IN EDUCATION

The Center for Vocational and Technical Education
The Ohio State University
1960 Kenny Road
Columbus, Ohio 43210

1974

THE CENTER MISSION STATEMENT

The Center for Vocational Education intends to increase the ability of diverse agencies, institutions, and organizations to solve educational problems relating to individual career planning and preparation. The Center fulfills its mission by:

- Generating knowledge through research
- Developing educational programs and products
- Evaluating individual program needs and outcomes
- Installing educational programs and products
- Operating information systems and services
- Conducting leadership development and training programs

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U.S. DEPARTMENT OF
HEALTH, EDUCATION AND WELFARE

National Institute
of Education

FOREWORD

The effective utilization of research and development products ranks as one of the top priorities in American public education. Research and development institutions can be responsive to the needs of state and local education agencies only if appropriate channels of communication are established and mechanisms developed for producing viable products that are likely to be used in public school systems.

The two concept papers contained in this publication were commissioned by The Center for Vocational and Technical Education to assist William L. Hull, program director, and Ralph J. Kester, research specialist, in their studies of the innovation diffusion process in vocational and technical education. The authors of these papers are recognized authorities on knowledge utilization activities. They were encouraged to approach the utilization of R & D products imaginatively and with no constraints by CVTE. The papers were used as resource documents within The Center. The decision to publish these papers was based on the timeliness of the topics and the desire to share this information with others who are concerned with the diffusion of educational research and development products.

Robert E. Taylor
Director
The Center for Vocational
and Technical Education

A DIFFUSION MECHANISM FOR THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION

Egon G. Guba

Indiana University

December 14, 1971

A Paper Prepared for The Center for Vocational and Technical Education, The Ohio State University

In developing my thoughts for this paper, I imagined that I had been hired as the director for diffusion for The Center for Vocational and Technical Education, and had been given the charge "to develop strategies and tactics for the diffusion of Center-developed exemplary innovations across the nation." The nature of The Center products to be diffused was described to me as falling into three categories: informational documents designed to create awareness and interest, training materials designed to create particular capabilities, and installable systems intended to provide back-up support for adopters. I am told that the target audience for my diffusion effort is not to be the ultimate consumer, i.e., youth participating in vocational-technical education programs, or even the trainers of those youth, i.e., their immediate teachers. Rather I am to be concerned with a "middleman" audience--state department vocational education units, RCUs, college departments of vocational-technical education, and the like. This middleman audience is presumed to give me certain leverage with the more ultimate audience down the line; the "multiplier effect" acts to provide an efficient link with the ultimate consumers.

As I address myself to my task I recognize at once that I have three levels of decision to make, pertaining respectively to the diffusion model I will employ, and the <u>strategies</u> and <u>tactics</u> I will use in its support. By "model" I mean simply the underlying theory of diffusion that will guide my efforts. A "strategy" is an overall plan of action concocted in the terms of the model,

while a "tactic" is simply a particular maneuver or step dictated by the strategy.

Turning first to the question of the model to be used, I recognize that I have a number of alternatives from which I might presumably select. There are four predominant models described in Ronald Havelock's report, Planning for Innovation, and summarized by him in these terms:[1]

1. The RD&D Model. This is, according to Havelock, a rational model which suggests that diffusion is part of an orderly chain of events that begins with research, moves through development and diffusion, to adoption. Five salient characteristics are associated with this model: rational sequence, planning, division of labor, defined audience, and high investment for maximum payoff. The RD&D model, I understand in my role as Center director for diffusion, is the model which guides much of the effort of The Center. The names of Clark and Guba are frequently associated with it.

2. The Social Interaction Model. This model stresses social interaction as the primary means of diffusion. The major concerns of the theory are: the importance of the social relations network, the user's position in that network, the significance of informal personal relationships and contacts, the importance of reference

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[1]Ronald G. Havelock, Planning for Innovation, Center for Research on Utilization of Scientific Knowledge, University of Michigan, Ann Arbor, Michigan, 1969. (Final Report on OE Project Number OEC-3-7-070028-2143)

group identifications, the essential irrelevance of the size of the adopting unit, and the differential significance of the different types of influence strategies at different stages in the adoption process. Everett Rogers is seen by many as the chief proponent of this theory.

3. The Problem-Solver Model. This perspective suggests that diffusion begins and ends with the user. Its chief characteristics are as follows: the user is the starting place, diagnosis precedes solution identification, any outside help must be non-directive, diffusion is seen to depend for success on internal rather than external resources, and user initiated change is seen as strongest. Ronald Lippitt and Matthew Miles are most often linked with this point of view.

Havelock, after reviewing these three models, suggests that

> . . . each of the three perspectives . . . provides us with valuable insights and useful guideposts for developing a comprehensive view of the whole, but each leaves much to be desired when viewed separately. Clearly there is a need to bring these three viewpoints together in a single perspective that includes the strongest features of each.[2]

He therefore proposes an eclectic fourth model:

4. The Linkage Model. This model begins with the stress on the user found in the Problem-Solver Model, but suggests that the user must depend not only on his own resources but be strongly linked to outside resources as in the Social Interaction Model.

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[2] Ibid., p. 11-15.

Outside resource systems obviously include available RD&D systems that have innovations to propose for adoption that are the result of the R&D process. The linkages result in a "chain of knowledge" utilization connecting the most remote sources of expert knowledge in the university with the most remote consumers of knowledge.[3]

As a local director of diffusion I certainly share Havelock's hope that a single eclectic model combining the best features of each of the three existing models might be fashioned, since I can surely use only one model to guide my diffusion efforts. But I am uncertain that the Linkage Model he proposes is really what I need. It is, after all, based on the premise that the system starts with the user, but that assumption does not fit my situation very well. CVTE operates as though the system begins with research knowledge. That is, CVTE's approach appears to be based on the RD&D model, whether for good or bad, and I can hardly require CVTE to change its propositional posture simply for the sake of expediting my diffusion task. It is up to me to conform to CVTE's basic assumptions and not CVTE to mine. In any event, I am not so certain that an eclectic model is that much better than the RD&D model. The latter model is, after all, widely used, and while there are difficulties with it, the evidence against it is not so momentous as to cause its rejection out of hand. There is also some evidence favoring its power and perspective. All things considered, then, I must come to the conclusion that

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[3]Ibid., p. 11-17

I will accept the mandatory and conform to the RD&D model.

The question of models thus seems to be settled, albeit with some misgivings. What about strategies? Brickell and Guba seem to agree on a number of points here. Brickell for example suggests that the following elements must be considered in devising a strategy: the images of the practitioner held by the diffuser (e.g., he is a creature of regulation, he wants to do more and better, he is interested in the use of power, etc.); characteristics of the adoption setting (e.g., leadership, power distribution, growth pattern, etc.); and characteristics of the innovation (e.g., magnitude, cost, completeness, etc.).[4] Guba suggests similar elements as determining the nature of the diffusion strategy: assumptions concerning the nature of the practitioner who will be exposed to the strategy (rational, economic, value, etc.); assumptions concerning the end state in which one wishes to leave the practitioner (better trained, more knowledgeable, etc.); assumptions about the nature of the agency or mechanism carrying out the diffusion activity (governmental, private, regional, etc.); and assumptions concerning the substance of the invention (relative advantage, complexity, divisibility, etc.).[5]

I see then that the selection of a strategy is not going to be a simple matter; strategies are highly variable depending upon

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[4]Henry M. Brickell, "Alternative Diffusion Strategies," paper developed for The Center for Vocational and Technical Education, the Ohio State University, August 1971.

[5]Egon G. Guba, "Development, Diffusion, and Evaluation," in Terry L. Eidell and Joanne M. Kitchel, eds., Knowledge Production and Utilization in Educational Administration, CASEA, University of Oregon, 1968.

a number of circumstances that must be assessed in every individual case. Whenever there is a change in the audience, or in the innovation, or in the setting, or in the desired end state, or in the diffusion agent or agency, the diffusion strategy must be altered to take account of this fact.

Now what about tactics? Are there any guidelines here to help me? Again we turn to Brickell and Guba for illumination. Brickell suggests no fewer than sixteen tactics, including, for example, legislation, negotiation, utilizing prestige of the developers, providing additional resources, and the like.[6] His suggestions are intensely practical but therefore also very singular. Guba is more parsimonious and theoretical; he suggests six generic types of tactics including: telling, showing, helping, involving, training, and intervening.[7] In both cases it is apparent that the tactics are still open-ended, i.e., they are not determinative, for example, about <u>what</u> legislation gets passed, <u>what</u> shall be the subject for negotiation, <u>what</u> should be told, <u>what kind</u> of training should be given, etc.

By this time, in my fancied role as director for diffusion for The Center, my head begins to swim just a little. What can I do to make operational sense out of this conglomerate of models, strategies, and tactics? It takes only a few moments of arithmetic to see that if one combines all the models with all the strat-

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[6]Brickell, <u>op. cit.</u>

[7]Egon G. Guba, "The Basis for Educational Improvement," paper read at the Kettering Foundation-U.S. Office of Education sponsored National Seminar on Innovation, Honolulu, July 1967.

egies and with all the tactics that a very large number of variations exist. Brickell recognizes this problem with the following statement:

> . . . there is no finite set of diffusion strategies. an infinite list can be generated by assuming the diffusion has three aspects: it inovlves (1) placing an innovation with given characteristics into (2) a setting which has certain features and in which (3) the practitioner has customary ways of behaving. Since there is an unending list of potential innovations and an enormous variety of settings as well as limitless ways for practitioners to behave, there is no end to possible strategies. That is, the imaginable combinations of innovations with settings with practitioner behavior is without limit.[8]

My first tendency is not to allow the profusion of combinations to deter me from the goal of identifying the many models-strategies-tactics combinations and then selecting from among the set that unique combination most suitable to the case in hand. After all, I do have available to me sophisticated computers that handle other complex tasks fairly easily. If I could program the many combinations, I could have the computer select for me the "correct" combination in any case by simply punching in setting characteristics, innovation characteristics, practitioner characteristics, etc. I would have in effect a grand "strategy machine" that could select for me just the right strategy.

But again practicality intervenes. I do not have available such a computer program now, and the complexities of developing one are such that I could not hope to have one for quite some time. There is also the question of whether my budget will permit the expenditures required for development. But in any case, even

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[8]Brickell, op. cit., p. 32.

if I did have a developed program with the requisite characteristics, there is good reason to believe that I could never use it because of the level of specificity in information required to make it work. Some of the elements of the mix are easily assessable; for example, I can generally specify the characteristics of an innovation that I want to diffuse; I generally know the characteristics of the diffusion agent, etc. But most of the information I require as computer input could be obtained only at great cost. I must, for example, have a detailed knowledge of the characteristics of the audience on as many as ten highly complex variables. The instrumentation for measuring these variables is at best in very crude form, but even if the instrumentation problem did not exist, I would still face the task of applying the instruments to a reasonable sample of the audience. It might well be the case that the cost of procuring the needed information would exceed the cost of the entire diffusion program, perhaps approaching even the cost of developing the innovation in the first place. For all practical purposes it is simply not possible for me to pursue this line.

It seems to me, in my imagining about the diffusion director's role, that it is at about this point that your actual diffusion director now finds himself. He has read all of the documents that I have referenced and a great many others besides. He is not, as is often claimed, the victim of an information shortage; rather he has more information than he can accommodate in a practical

diffusion plan. He has the variety of models, strategies, and tactics from which he might choose, but he is overwhelmed by their complexity and their evident impracticality.

Nor is he much helped in this dilemma by the proposers of this plethora of models, strategies, and tactics. Guba, for example, is strangely silent on the subject of application, while Brickell, himself heavily committed to practice, can do no better than to offer several examples of the kinds of strategies that he would propose in several specific situations. But there is no indication of the method by which he devised these particular strategies; they certainly are not deduced from or generated by the considerations which Brickell insists are crucial to strategy determination. They are determined more "systemagically" than systematically.

I come then to the conclusion that the particular path that has been suggested in the literature for the determination of diffusion strategies and tactics is not especially fruitful. While the theories that have been propounded do provide an exceptional perspective for the examination, analysis, understanding, or critique of diffusion strategies that have been developed by other means, they do not afford a means by which a specific diffusion strategy appropriate to a given situation can be developed. We are in this connection no more advanced than the examples set for us by master practitioners such as Henry M. Brickell can take us. I conclude there is no practical way to generate diffusion strategies and tactics known to us now.

But I am, as the imagined director for diffusion, still faced with the task of devising a fruitful diffusion program for The Center. What am I to do in the face of this conclusion? Is there any way to proceed other than instinct or trial and error? Must diffusion remain an art, never to become a science?

These are very difficult questions that I have only recently begun to face up to and for which I have no general answers. But I believe that I do have an answer in the specific circumstances of The Center for Vocational and Technical Education; most of the remainder of this paper will be devoted to its explication.

A Proposal for CVTE

In thinking about other possible approaches that I might propose in connection with CVTE's specific circumstances, I was impressed by two considerations that seem to me to be of very special importance.

First, I was struck by the fact that the diffusion problem in education generally appears to have been badly handled. Efforts at educational diffusion, as we are all well aware, have not been as successful as we hoped. I believe this lack of success is chiefly due to the fact that the strength of diffusion interventions has rarely been equal to the strength of the myriad obstacles to change. All too often our diffusion efforts have taken the form of a simplistic response based on some research datum. So for example education has been deluged by a plethora of newsletters

that have been spawned because research indicates that the first step in diffusion is the creation of awareness. But such simplistic responses are simply not equal to the tasks that confront us. It seemed to me that whatever the nature of CVTE's diffusion response, it had to be of a magnitude of force roughly required by its task. Anything less would be wasteful of resources for it would doom The Center's products to non-adoption.

Second, it seemed to me that the chief characteristic of the CVTE diffusion situation was that it was directed toward a middleman audience. What CVTE was trying to do, in effect, was to enlist an already existing network of diffusion agents toward its own ends. Moreover, it seemed to me that the existing network wanted to be enlisted; that is, the network was developed primarily as a diffusion network for past federal programs in the vocational-technical education arena. Thus the vocational-technical departments of state education departments, the RCUs, the programs of vocational-technical education in universities, existed chiefly because they had had federal subsidy and were specifically designed to provide intimate contact between Washington and the consumers of vocational-technical education. Vocational-technical education might be described as one of the few areas of education for which there exists, in effect, a federal curriculum and a means for its diffusion. The existence of this available network was a fact of major significance in devising a diffusion policy for The Center.

Having made these two observations, I cast about for some perspective that would direct me to a particular strategy for taking them into consideration. What I wanted was a theory that could account for massive efforts at change and which could assist me in formulating a plan for utilizing an already existing diffusion network. I found what I wanted in the recent (and mainly unpublished) writings of my colleague at Indiana University, Harbans Bhola.

Bhola's relatively unique experiences have given him an unusual view of the change process. A native of India, Bhola's education was received mainly in the United States. At Ohio State University, where he did his doctorate under the general direction of Edgar Dale, Bhola developed a change theory which he labeled the "Configurational Theory of Change," based in part on his experience as an educator in India and in part on the emergent literature on the change process which was beginning to make a significant mark in the early sixties. Upon completion of his degree work, Bhola returned to India where he worked for several years as a staff member and as acting director of Literacy House, an international experiment in the teaching of reading. Later he accepted an assignment as a Unesco literacy officer on a major literacy project in East Africa. For the past year and a half he has been a member of the Department of International and Comparative Education at Indiana University, in which role he has continued an active contact with both South American and African

change efforts. He tends therefore to think of change on an international level, and to view it in terms of variables which are not usual to the American mind.

Recently I had the opportunity to study a paper prepared by Bhola which proposed that change process could best be understood as a phenomenon of affiliation by elite groups.[9] As Bhola himself points out,

> Any use of the word elite raises in some minds the image of a world run by the boss with the help of his lackeys resulting, inevitably, in the enslavement of societies. Elitism is associated with totalitarianism of the Left, or fascism of the Right. Elitism, however, need not fuel such fantasies. The elite have always been part of any organized social life and always will be. The more worthwhile issues seem to be those of elite values, elite pluralism for cultural options, elite recruitment, and elite rewards . . .[10]

To paraphrase Bhola, he contends that the concept of elitism does not intrinsically carry connotations of good or evil, and whether or not any particular form of elitism should be branded as evil depends entirely on its content and the means used to establish it. Thus we should for the moment constrain our natural tendency to reject any notion of an elite and should instead investigate the power of the concept for understanding our situation.

Generally speaking, Bhola defines an elite as any group having three characteristics: a system of ideas that they have invented or subscribe to; an active commitment to their chosen ideology; and the ability to institutionalize, to actualize, and to perpetuate their ideologies and the institutional products of those ideologies and the institutional products of those ideologies. I sub-

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[9]Harbans S. Bhola, "The Dynamics of Change--A Process of Conquest and Annexation by the Elite," paper prepared for an Indiana University Seminar on Educational Change ("Planned Educational Change--Issues and Directions"), Indiana University, Fall 1971.

[10]Ibid., p. 13.

mit that CVTE qualifies as an elite under that definition very well indeed.

Bhola defines a number of subclasses of an elite as follows. There is first of all the absolute elite, the core group whose influence predominates and who are, in general, the sources of the concepts and ideas that motivate the group and give it a raison d'etre. A second class of elite is the authorized elite, a group "exercising power on behalf of someone else or some group for the purpose of achieving results determined or desired by them."[11] Finally, there is the instrumental elite "who become the instruments of the absolute and authorized elite for...annexation and maintenance of what has been annexed."[12] I believe that the situation encompassed by these definitons fits tolerably well CVTE's situation. The CVTE group is itself the absolute elite, the middleman group that its diffusion campaign is directed toward is the authorized elite, while the more ultimate audience, i.e., the teachers, constitutes the instrumental elite.

Bhola then connects up the concept of elitism with the concept of change through the following observation:

> Change is conquest and annexation, both in war and peace. All change is born in ideas and thus with the absolute elite. These elite, to multiply their resources, co-opt an authorized elite, and subsequently, an instrumental elite. . . The contending elite, if there are any, work to make their conquests and annexations, organize their parties, recruit their armies. Contending elite groups fight wars both with munitions and words of propaganda to annex people to their respective system of ideas. The same process of. . .affiliation repeats itself in all sizes of systems. . .[13]

Bhola points out that this system of affiliation or annexation does not necessarily work to the detriment of the lower level

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[11] Bhola quotes this definition from Adolf A. Berle, Power, New York: Harcourt, Brace,and World, Inc., 1967, p. 95.

[12] Bhola, op cit., p. 19.

[13] Ibid., p. 27.

elites or the man in the street. Annexation, he suggests, is often "an invitation to rewards--economic, social, and of power."[14] Indeed, one may assert that individuals often willingly affiliate themselves with an elite in order to make themselves eligible to receive the fruits of membership. What is crucial again is the motivation of the various levels of elite. If, as in the case of CVTE, we may assume an absolute elite tied to other levels by a code of professional conduct which all sides take seriously, and if we may assume that an element of this professional code is to improve the condition of the ultimate consumer--the vocational-technical student--we have no intrinsic basis for rejecting the idea of elitism. What we should do is to see what utility the concept has for aiding us in our task, which is, I remind you, to devise a diffusion strategy for CVTE.

Let me assume for the moment, then, that a suitable diffusion strategy for CVTE might be devised by exploring what might be meant by the notion of enlistment or affiliation of an authorized elite. Let me again call your attention to the fact that such an authorized elite already exists as the result of earlier federal interventions for very parallel purposes, that is, to devise and maintain an effective system of vocational-technical education in the United States. What might CVTE do to recruit that ready-made authorized elite and persuade them to work with CVTE in distributing its products nationally? What inducements might be offered for cooperation?

The process of affiliation or enlistment is essentially a matter of negotiation between two parties. In this case CVTE has

a "product line" which it wishes to have distributed nationally, tap such an existing group of agencies or individuals who might be persuaded to act as authorized distributors (I think there is an elegant parallelism between the phrase "authorized distributor" and the pharse "authorized elite"). I propose that in this negotiation some nine elements are at stake: reputation, enfranchisement, quid pro quo, territoriality, surety, warranty, local option, socialization-training, and assistance. Let me discuss each in turn.

1. Reputation. We have pointed out that one of the essential elements in establishing an elite is that there exist some central set of concepts or ideas. The process of affiliating an authorized elite is the process of persuading them of the validity or utility of this conceptual set. Instrumental elite may be recruited for baser rewards such as money or power, but authorized elite must believe in the essential soundness of what they are asked to support. If CVTE seeks to enlist an authorized elite to distribute its products, it must first convince that elite of the soundness of its products and of the concepts and principles that underlie them. The reputation and integrity of CVTE are at stake. Moreover, the distributors must be convinced that the products will work to the satisfaction of the ultimate user, for their is no profit in a dissatisfied customer. In sum, the potential dealer must be satisfied that the product which CVTE proposes that he distribute is a good product that will produce reasonable customer satisfaction.

2. Enfranchisement. The distributer as part of a set of authorized elite must have some tangible symbol of his affiliation, that is, he must be "officially" authorized to distribute the products of CVTE, and he must be granted certain powers or privileges as a result of that official status. The business world calls a similar granting of authority a franchise, and I propose that CVTE grant franchises to its authorized elite. After all, to be an "authorized Buick dealer" carries a great deal more prestige than simply to be an automobile dealer. Enfranchisement indicates a degree of formal affiliation with CVTE and hence commitment to it.

3. Quid pro quo. We have commented on the fact that individuals may seek affiliation with an elite because of the rewards that spring from affiliation--status, power, financial rewards, or other prerequisites. The quid pro quo is the sine qua non of the formal authorized relationsnip. In the case of the franchise of industry, the quid pro quo is profit; in the case of CVTE it may mean enhanced professional prestige, enhanced position of leadership, and even an enhanced sense of doing good. Note that it is the authorized elite that must reap the quid pro quo; CVTE must be alert to the nature of the rewards that must be involved and must contrive to offer them to the authorized elite.

4. Territoriality. An important aspect of the franchise is that it confers exclusive privilege within a specified region. The concept of territoriality is an important psychological feature

of all life, as we have recently come to know, and it is doubly so in the case of a risk-taking distributor. He needs to have assurance that he operates within a protected sphere; while he may need to face competition from other firms he ought not have to fight off competitors distributing the same product as he. Thus the authorized elite need to be selected carefully on a territorial criterion to assure that each has a reasonable sphere of protected influence.

5. Surety. What is meant by the concept of surety is essentially fail-safe participation on the part of the authorized elite. The dictionary defines surety as "a pledge or promise made to secure against loss, damage, or default." The risk of failure, that is, must be transferred to someone else, in this case, the absolute elite or CVTE, while the opportunity to share in the rewards remains. While the distributor may gain from the adoption of the product which he distributes, he cannot assume responsibility for its ultimate validity or utility. It is up to the parent company, i.e., CVTE, to have carried out the research or evaluation needed to establish the product's validity or utility; it is ultimately CVTE that stands behind the product and not the distributor. When a motor car company must recall thousands of cars of some model in order to remedy some built-in defect, it is the manufacturer and not the dealer who bears the cost. Similarly CVTE must offer its authorized elite an indemnity against failure.

6. Warranty. The concept of indemnification extends not only to the dealer but also to the consumers with whom he must deal. The dealer must be in a position to offer warranties to his customers, not against the kind of massive failure just discussed, but against the minor breakdowns and problems that almost always occur when a new product is put into use. Even under the most controlled conditions products are not exactly similar, and defects do occur. CVTE must be ready to stand behind its product when this happens; it must extend a warranty through the dealer to the ultimate consumer. From the dealer's point of view this a further kind of risk-sharing.

7. Local option. It is unlikely that any of the products that CVTE produces can be used exactly as they come off the assembly line by a consumer. Almost always adaptation must precede adoption; i.e., the product must be adjusted to fit local conditions, personnel, purposes, and the like. Thus CVTE's products must be devised in ways that will permit the local consumer to make his desired adaptations. Moreover, it is unlikely that a single version of a product will fit local needs and interests exactly. Every product ought to have optional features that can be added to or subtracted from a basic product, in the same way that automobile manufacturers produce a basic (sometimes called "stripped") automobile to which the local purchaser can add a variety of power and comfort options. It is necessary for CVTE to engage in consumer sampling activities to determine the best

mix of options to facilitate local adaptation and to be responsive to local option needs and desires. The results of such consumer sampling can first and foremost determine the nature of the baseline product to be produced (we commonly call this process responding to needs, problems, and opportunities) but can then provide the additional information needed to permit local options to be exercised.

8. Socialization-training. If one expects a dealer system to operate effectively and efficiently, the personnel of that system must be both socialized and trained. The socialization process consists in familiarizing the dealer personnel with the nature of the several product lines to be handled, helping them to understand the concepts and principles on which they operate, and learning about the parent company's propositional posture, that is, their basic values and concerns. When you walk into a Ford showroom, for example, you expect to feel the Ford "aura" and you expect to find salesmen familiar with the products to be sold, their advantages, and their uses.

But sales is only part of the process; service is equally important (indeed, a dealer's reputation for service, or lack of it, may be more determinative of his sales than any other single factor). The slogan, "We Service What We Sell," has great significance, particularly with so complex a product as those which CVTE produces. Moreover, the service element may consist not only of repairing defects and breakdowns but of installing the

product and training local personnel in its use. CVTE must offer its dealer network some "factory training," as it were, so that the service function can be discharged smoothly and efficiently.

9. Assistance. The company as a whole has a great deal more experience than any of its dealer subsystems. It is in the interest of both the parent company and the dealer for the parent company routinely to provide certain kinds of operational assistance to its local outlets. It is not inconceivable that the local dealer will require some help to raise the capital he needs to set up shop; the parent company can help him to arrange it and to guarantee it. A variety of local operations will be necessary to keep the dealership functioning--stock control, invoicing, accounting, budgeting, staffing, and the like. Again the parent company can help by suggesting certain routines for carrying out these functions and helping the dealer to install them. The parent company can also carry out efficiency inspections from time to time, helping the dealer to identify problems and suggesting ways of dealing with them.

There is a further kind of assistance that the dealer needs in relating to his potential consumers. The consumers must become aware of the product and to appreciate its potential utility to them, i.e., a market must be created. The parent company can carry out the analog of a nationwide advertising campaign; it has resources and outlets to do so which are typically not within the grasp of the local dealer. Furthermore, the dealer requires a

variety of promotional literature that he can place into the hands of potential consumers once an initial contact is made. This promotional literature is in effect a surrogate dealer that remains with the customer as a continuing reminder and as a means of answering questions that occur to the customer when the dealer is not present.

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If the analysis that I have been making is useful, we should be able to project from it a series of characteristics which should typify CVTE if its diffusion program is to be successful. Thus it is clear that a first requisite is a good product line on which a solid reputation must be based. CVTE must offer its dealers a system of territorially protected franchises that provide suitable quid pro quos. Dealers must be given indemnification against failure and against consumer complaints. CVTE must produce a product that can be adapted by the customer to his own needs and interests. CVTE must provide various kinds of operational assistance to the dealers and above all must provide for training of dealer personnel. The question then is, "If these are the conditions, what mechanisms must exist within CVTE to make possible a proper response to them?"

Organizing CVTE for Effective Diffusion

The mechanisms needed within CVTE to carry out these functions seem to me to fall into five categories, which conveniently

can be thought of as organizational entities within CVTE. These organizational entities, it will be seen, cannot in general be placed within a department or unit concerned solely with diffusion; rather a series of interactions must be possible with other departments or units within CVTE. I will describe five organizational units, as follows:

1. A Distributor Relations Division. The major function of this division is to identify, establish, and maintain a series of franchised distributors for the distribution of CVTE products. Its activities include:

a. Identifying potential distributors. In the case of CVTE this will be fairly easy task since an authorized elite already exists which can be affiliated and that, in the main, will probably wish to be affiliated. At the very least this group of authorized elite has already incurred some obligation to serve by virtue of its affiliation with the federal network of vocational-technical agencies. But other types of agencies may also be potential distributors, e.g., a regional laboratory, or a Title III Center.

b. Soliciting potential distributors to join the distribution network. While most of the potential distribution agencies mentioned a moment ago are likely to be positively predisposed toward assisting CVTE, they are not required to do so, and they may find it undesirable to do so for a variety of reasons. They may for example feel that they are understaffed or underfunded, or

they may have a competitive product to which they are already committed, e.g., a vocational education unit developed by a professor of vocational-technical education. But even those agencies that are positively inclined will require some inducement, some quid pro quo, to make it worth their while. It is the responsibility of the Distributor Relations Division to make potential distributors aware of CVTE's product line and of the various reasons why accepting a dealership is wise.

c. Negotiating franchises. The relationship between CVTE and its franchised agents is not casual. There are expectations on both sides. These expectations must be spelled out in detail and should include most of the elements which I explored above as relevant to the negotiation between parent company and franchised agents. The expectations of special concern include territoriality and quid pro quo; the dealer must have exclusive rights to CVTE products for a given region and he must clearly see the benefits to him of participating. For the agent these benefits may include an increasedcash flow which may enable him to hire more staff, get more equipment, rent more space, or make some other resource allocation of concern to him. He receives the right to represent himself as an "authorized" dealer, a fact which may add to his prestige as well as to help him to attract "business" in other areas because of his increased credibility.

From the point of view of CVTE, entering into franchises guarantees a badly-needed field network committed to the distri-

bution of CVTE's products. The dealers may confidently be expected to generate greater enthusiasm for persuasion than would be the case if their relationship to CVTE were more informal. The franchised dealer will invest more of his own resources in the requisites of diffusion--staff training, local demonstration, service, and the like. His capability for responding to problem situations will thereby be increased, as will his reputation for reliability.

d. Provide operational assistance to franchisees. The relationship between CVTE and the dealer cannot terminate with the ratification of a franchise contract. CVTE has a large stake in the success of its dealer network, since without that network diffusion cannot go on. Services must be rendered to the dealer to assist him in establishing and maintaining an effective and efficient operation. These services include but are not limited to: providing some initial capital investment to enable the hiring of staff and the provision of other resources necessary for operation; providing advice in organizing and setting up the operation, based on the experience of CVTE with other franchisees; providing some initial orientation to the new staffs; assisting with initial local advertising to announce the new dealership; and the like. Services must also be rendered to the dealer to assist him in remaining effective and efficient over time. These services include but are not limited to: making evaluations and other operational checks as a kind of process control; providing

auditing and other accounting services; providing management assistance to dealers whose operations are faltering in some way; providing advice on how to meet competition, and the like.

2. A Warranty Division. The major function of this division is to provide for the effective warranteeing of CVTE products. Its activities include:

a. Determining the extent to which the products of CVTE can be warranteed. Judgments on this factor must of course be based on evaluative evidence. It is not the function of this division to produce that evaluative evidence; presumably the evidence comes from other CVTE units concerned with evaluation and field testing. But the Warranty Division must determine whether the evidence that has been accumulated is sufficient to support underwriting a product; if it is not the division must refuse to warranty the product and must define additional evidence needed to make the product warrantable.

b. Determining conditions under which the CVTE products can be warranteed. Obviously the warrantee made by this division for any product does not apply under all circumstances but only under specific conditions. Every product is designed with a certain use or objective in mind. These uses or objectives must be spelled out carefully and the warranty must be related to them. Whenever redress is sought under the terms of a warranty, it must be established that the conditions were in fact met. Statements of conditions are essential for the guidance both of the dealer and the

instrumental elite (e.g., teachers), so that there can be no misunderstanding about the limits of the dealer's or CVTE's responsibility.

c. Specifying the nature of the warranty. Given the above two specification, i.e., the extent and conditions of warrantee capability, it is the responsibility of the Warranty Division to state the exact terms of warranty to be attached to any given product.

d. Determining the role of the dealer in honoring warranties. Most complaints brought under the terms of a warranty will easily be handled by the dealer. The conditions under which a local dealer is bound to respond should be carefully noted; these conditions should be part of the contract negotiated by the Distributor Relations Division. Generally such dealer adjustments will require the expenditure of resources; the amount of allowable expenditure should be noted and details of reimbursement to the dealer from CVTE should be specified. The dealer must be ready to absorb a portion of the cost as part of the normal cost of doing business, of course, but reimbursement may be necessary under unusual conditions.

e. Responding to warranty problems beyond the capability of the local dealer. From time to time serious problems covered by the warranty will arise which are beyond the capability of a local dealer to respond. The Warranty Division must maintain a services unit-a kind of trouble shooting organization, to respond

to such difficulties. In many cases a response will require travel to the site of the problem, carrying out diagnosis on the local site, and prescribing and possibly administering certain remediation. It is imperative that warranty obligations be honored, and the purpose of the Warranty Division in this regard is to make good on difficult claims.

3. A Training Division. The major function of this division is to provide "factory training" for the personnel of local dealers. Its activities include:

a. Devising requisite training programs for dealer personnel. Training programs are required for each of the classes of personnel which the dealers may maintain. It is the responsibility of the Training Division to identify the various types of staff, including management; to analyze their duties and functions; and to design training programs responsive to each staff need. This is a major development task that cannot be treated cavalierly. Since a major segment of CVTE is geared up to perform this development task, the Training Division should expect to lean heavily on other CVTE components for assistance.

b. Offering training courses, workshops, etc. It is a function of the Training Division to implement the training designs developed by its design staff with the cooperation of other CVTE units. These designs may call for formal courses, short-term institutes or workshops, internship or apprenticeship experiences, auto-tutorial experiences, and other kinds of instructional gambits.

Demonstrations of CVTE products are of course also included. It may be noted that such instruction may also be offered to a very large extent in the field, i.e., at the site of the local dealership or perhaps on the sites of one or more of the dealer's potential customers. Thus training may be combined with a certain amount of awareness creating or product demonstration for customers. The offering of these various kinds of instruction is the chief continuing function of the Training Division.

c. Following up on "graduates" in their field assignments. The main purpose of this activity is to validate the training programs that have been devised and to provide data for their continuous refinement and improvement. This activity also has the effect, however, of demonstrating the continuing interest of CVTE in its dealer organization, and it may be expected to be a major means of continuing dealer-CVTE contact. The follow-up also has the effect of helping new personnel to become oriented to their actual situation and to make the transition from novice to experienced practitioner.

d. Engaging in continuous retraining of dealer staff. If CVTE's "product line" is conceived of as being dynamic, i.e., the products are being continuously improved and new products are being introduced, it is clear that dealer personnel must be continuously retrained to be conscious of the innovations and to be competent to deal with them. In this sense the Training Division may be thought of as a change agent; its activities

may in fact help to build an adopting attitude among dealers for new products and may help to expedite the change process generally. A further implication of this activity is that there must be among the Training Division personnel some individuals charged with continuous examination of the training programs that are being offered in order to improve or update them. These same personnel also would be concerned with the development of new programs as needed.

4. A Promotions Division. The major purpose of this division is to create a market that can be exploited by the local dealers. Its activities include:

a. Conducting general campaigns devised to create awareness of and interest in CVTE products. This is in effect CVTE's advertising function. Dealers cannot sell products to customers who are unaware of the product line and its possible benefits. If there is one thing that the research literature in diffusion shows, it is that the creation of awareness and interest must be first steps in the diffusion process. While some of this activity must be carried on by local dealers, much of it can be done more effectively and efficiently by the CVTE organization. There are probably two major sources of data useful in shaping these awareness campaigns: information from the developers and evaluators of the product about its purposes, operating characteristics, field effectiveness, and the like; and information from the market survey personnel (which I will describe below) about the

needs and problems of the potential consumer group, i.e., classroom teachers and their students. Advertising campaigns are generally directed toward pointing up such audience needs and problems and then providing evidence that the advertised product is effectively responsive to those needs and problems.

A word of caution seems in order here. The close parallels between general advertising and CVTE's efforts to create product awareness and interest should not be interpreted to mean that the lamentable lack of ethics frequently apparent in ordinary advertising are also in order for CVTE. The strict observance of professional ethics on the part of CVTE in all such activities is crucial. Integrity and honesty must be maintained at all costs. The object is not merely to sell, whether or not the customer really needs the product or can afford it. CVTE's advertising should instead be directed toward opening professional alternatives for the consumer; their products represent at least one additional way of viewing needs or probelms and responding to them. It is the creation of awareness on such a professional dimension that is the key to CVTE promotional activities.

b. Providing promotional literature. If general advertising of the sort described above is intended to attract potential users to inquire about CVTE's products, the purpose of promotional literature is to provide already interested potential users with a variety of information about the product and to act as the dealer's surrogate at times when the potential user is not physically in

touch with the dealer. The Promotions Division is dependent on the Market Analysis Division (below) for information about the kinds of questions that potential users ask so that promotional literature can be effectively designed. Again, the caveat mentioned above about maintaining strict professional ethics in all promotional work should be borne in mind.

5. A Market Studies Division. The major purpose of this division is to provide information essential for product selection, design, and development, and for the design of promotional campaigns. Its activities include:

a. Context assessment. CVTE's products are not selected at random; they are intended to respond to some need, problem, or opportunity that exists in the general arena of vocational-technical education. Hence some assessment of these three factors must be made and must be continually reassessed, to provide information useful to product designers and developers as well as to CVTE program decision-makers. Such assessments may or may not be made through contact with actual consumers; it may for example rest upon information in the research or experiential literature. In most cases, however, some field contacts will be desirable.

It is quite likely that the assessment function called for here will already be performed by the CVTE evaluation unit. If so, separate studies should of course not be mounted; instead the Market Studies Division should avail itself of the already obtained information.

b. Consumer sampling. If the context assessment is intended to provide objective data about needs, problems, or opportunities, the consumer sampling to be described here is intended to shed light on consumer tastes and values. Two kinds of consumer sampling seem to be required: samples of users of CVTE products who selected them on some basis at an earlier time, and samples of potential users. The former information is intended to confirm or validate earlier product design features, to find out, as it were, what the company did right. Again it may be the case that much of this information is already available because of product evaluations carried out by other units of CVTE. The latter sample is needed in order to determine what changes might be necessary to attract new users. This is in effect an assessment of what the company might do right in the future. Both groups may provide data about what the company has done wrong; users may point to actual difficulties they have experienced with the product, while non-users may indicate why they have not become users. From these data a variety of user-pleasing options may also be deduced.

c. Future studies. The context assessment described above provides the basis for what might be called incremental changes in CVTE's program: a refined product, a newly emergent need to which response might logically be made given CVTE's general posture, a new promotional technique, and the like. The time perspective of such studies is likely to be on the order of from one to five years. But CVTE cannot be content with such small and

deliberate shifts in its programs or strategies; it must look far ahead to be sure that it is ready to meet the future when the future meets it. Boeing Aircraft wisely invested several years ago in a study of ways in which it might shift its corporate posture in the event that the aircraft industry declined; it is rewarded now with the capability of moving into mass ground transportation and community development even as its aircraft contracts diminish sharply. In like manner, CVTE must be alert to its opportunities.

* * *

The five divisions described above clearly interact with one another and with the remainder of the CVTE organization in interesting and significant ways. So for example: The warranty set by the Warranty Division is part of the contractual relationship between the Distributor Relations Division and the franchised dealers. The field follow-up by the Training Division assists in maintaining the good relationships which the Distributor Relations Division is trying to foster. The Promotions Division provides the dealer literature which can be part of the operational assistance package that the Distributor Relations Division is responsible for. The consumer sampling carried out by the Market Studies Division assists the Disbributor Relations Division in counseling the dealer about his customer relations. The training provided by the Training Division gives the Warranty Division confidence that its proposed warranty can in fact be backed up by

the dealers. The work of the Warranty Division can be exploited by the Promotions Division to persuade potential customers of the reliability and utility of the CVTE product line. The Market Studies Division can help the Warranty Division to determine what factors users consider most important for inclusion in the warranty statement. The Training Division can acquaint the Promotions Division with some of the key concerns of dealer staffs so that promotional literature for potential users can take account of them. The Training Division can determine from the Market Studies Division some of the factors that it ought to stress in training dealer personnel. The Promotions Division can exploit the future studies of the Market Studies Division to point up their market creation work. Many other examples could be given but these will suffice to indicate the potential for interrelationships among the several units all of which are essentially concerned with diffusion.

Relationships also exist, of course, between the diffusion units and various other components and individuals within CVTE. Decision-makers thinking through future program orientations for The Center will rely heavily on Market Studies efforts in identifying possible and probable futures. Designers of new CVTE products will be influenced by data concerning what will "sell". Evaluators will relate themselves to the key questions and issues posed by dealer staff in training and by consumers. Indeed, every aspect of applied research, decision-making, design,

development, field testing, and refinement will be touched. The kind of intimate relationship envisioned here among all units of CVTE is an organizational truism but nevertheless requires overt effort to effect. It may be useful for CVTE to organize itself into ad hoc work teams which contain input personnel from every stage of the RD&D continuum, and certainly including diffusion, so that each element can have the possibility of influencing other elements in a positive way.

* * *

What I have proposed then is a massive organizational response to the problem of diffusion. The particular proposal is made in order to be responsive to what I cited earlier as two salient characteristics of the problem confronting CVTE in the diffusion area: the general failure of simplistic efforts at diffusion in education (i.e., more is needed than a pamphlet to create awareness and a demonstration to create conviction), and the unique situation of CVTE in having available an already existing diffusion network that it can annex. Thus the organization that I have proposed is complex, but it is also sophisticated and it is designed to be particularly appealing to the existing diffusion network. Such an organization will be difficult to erect and expensive to maintain, but it also has within it the seeds of success.

Success Criteria

An important question that must be confronted at this point is simply this: "What are the criteria for success of the system?" "How can one tell whether everything is going well?"

Generally speaking, there are two classes of criteria that must be applied in any evaluation. These two classes might be termed process and product criteria. What we are concerned with in the case of CVTE are certain products designed to alleviate some need, problem, or opportunity in vocational-technical education; criteria that refer to the performance of the product to alleviate may be termed product criteria. Some means are engaged to bring the product to bear on the need, problem, or opportunity; criteria that provide an indication of whether the means are successfully engaged might be termed process criteria.

It will be seen at once that in relation to the organizational response that I have proposed, we shall be concerned primarily with process criteria since the organization is a means to an end, viz., putting the CVTE products to use in the field. We have a number of levels of such process criteria:

At the first level we may ask simply whether the conditions for negotiation exist, i.e., whether the factors of reputation, enfranchisement, quid pro quo, territoriality, surety, warranty, local option, socialization-training, and assistance, have been systematically explored and analyzed so that negotiations with potential dealers can fruitfully proceed. There is no point in proceeding to negotiations until a positive answer can be given to this question.

At the second level we must be concerned with the question of whether the five organizational units proposed are in existence and functioning properly. Different questions will be asked of the different units, e.g.:

1. The Distributor Relations Division. Here we may ask:

   a. Are potential distributors identified?

   b. Are potential distributors aware of CVTE's product line and of the rewards inhering in CVTE product dealership?

   c. Are franchises being negotiated?

   d. Is there a dealer operational assistance program and is it offering services?

2. The Warranty Division. Here we may ask:

   a. Is there a product warranty award process?

   b. Do products when presented to the Warranty Division for warranty generally come well supported by positive evaluative data?

   c. Is there a clear warranty for each product?

   d. Is there a clear statement of dealer responsibility in servicing warranty requirements?

   e. Is there an organizational means to respond to warranty claims that exceed the local dealer capability to respond?

3. The Training Division. Here we may ask:

   a. Do training programs exist for each class of dealer personnel for whom training is desirable?

   b. Are training programs being offered and do dealer personnel take advantage of them?

   c. Is there a program of follow-up of training graduates to help determine the efficacy of the training programs and to provide data on which they may be improved?

d. Does the division offer means for continuous retraining as product lines are altered or extended?

4. The Promotions Division. Here we may ask:

a. Are there general awareness/interest campaigns aimed toward the instrumental elite, i.e., classroom teachers in vocational-technical education?

b. Is promotional literature provided?

5. The Market Studies Division. Here we may ask:

a. Is there a continuing context assessment of the needs, problems, and opportunities to be found in the field?

b. Is there a continuous means of sampling product reactions from samples both of users and non-users of CVTE products?

c. Is there a plan for future studies and are such plans being implemented?

At the third level we may be concerned with the interactions of the various divisions with one another and with other units within CVTE. We may ask, for example:

1. Are there clear instances of ways in which the various diffusion units interact positively with one another? Do the several units build productively upon the work and products of the other units?

2. Are there clear instances of ways in which the various units interact positively with other units in the CVTE. Do the diffusion units have an impact upon what is done, for example, by the research and development units? Is the diffusion process influenced by what is done in the R&D units?

All of the previous concerns are in a sense internal to CVTE. We can, however, also ask questions about what is

happening at the dealer level. Such questions as the following come to mind:

1. Does a dealer network exist?

2. Does each dealership have within it the organizational units necessary for working with users, i.e., for introducing the potential user to the product, for assisting the user to make up his mind whether he wishes to adopt, to help the user install the product once he has made a positive decision, and for servicing the product thereafter?

3. Is the dealer in fact establishing a positive record of adoptions?

4. Does the dealer have a low complaint record, and when complaints do occur, does the dealer successfully perform required warranty work?

At a final level of process concern, we may ask questions about the adoption of products by the instrumental elite, i.e., by the teachers who will use CVTE products in the classroom or in some other locale for which they were intended. Such questions as these come to mine:

1. Are products being adopted?

2. Are products being successfully incorporated into the user's program?

3. Are products being supported by the user as required, i.e., do users provide the resources, materials, staff, space, etc., necessary to successfully operate the innovation?

4. Are the products valued by the user, i.e., would the user prefer to give up other program elements rather than CVTE's product because he prefers the CVTE product to others?

5. Are CVTE products being assimilated by users, i.e., do they quickly come to be seen as part of the regular program and so turned into a non-innovation? Are the products being institutionalized?

Beyond the level of these process questions there is of course the ultimate question, "Will the product respond to the need, problem, or opportunity to which it was designed to respond?" Presumably this question has been partly answered as a result of the product evaluations done by CVTE as the product was being developed. It may be the case, however, that the product does not continue to perform in the required fashion once it is routinely used in the field. Some of the Hawthorne halo may be diminished; the regular teachers may not be as convinced or as motivated as the field trial teachers were; peculiar interactions may occur between the CVTE product and other program elements once it becomes part of the routine in the field. It is thus necessary to make a further test of the product under actual field use conditions; such tests do not involve the diffusion units directly, however, and hence need not concern them except insofar as the warranty may be affected if field use is adverse.

Research on Diffusion

I could not complete my remarks without some reference to the question of diffusion research. I have been given to understand that CVTE is interested in researching its own processes; the feeling seems to be that so long as diffusion activities are ongoing, one ought to make an effort to exploit those activities on behalf of research. What might that mean?

On the one hand, it might mean that CVTE is interested in determining the effectiveness of its means, so that others might adopt them if they turned out to be useful or simply that

CVTE might be satisfied that is was doing as well as it might. But such activities are not research, if one defines research as a process for adding new knowledge. I believe we might properly label such self-checking and self-improvement activities as <u>evaluation</u> rather than research. I have made the case in other contexts that research and evaluation are not compatible activities; that in fact to apply research paradigms to evaluation questions is self-defeating and intolerable. I will not repeat the many arguments that might be made in support of this point of view except for this one: research requires variable <u>control</u> so that conclusions are uniquely determined, but this requirement of control militates against one of the chief requirements of evaluation, viz., that evaluative data shall make it possible to improve and refine operations continuously. If, however, we change the operations because of evaluative information, we necessarily confound the variables that are being researched. Hence I argue that there is an intrinsic incompatability.

On the other hand, one might mean by the phrase, "doing research," that one intends to test somehow the underlying theory or propositional structure on which a particular diffusion campaign is based. This seems to me to be a sound approach, even though it may be the case that the research evidence that might result from studying the processes used by CVTE is incomplete or not entirely in conformity with scientific research principles. I make the latter statement because CVTE's research will necessarily be carried on as counterpart to its

operational program of diffusion. Generally speaking, the diffusion campaign will be structured in ways to produce maximum diffusion results, not maximum research information. If the research interest is ever in conflict with the practical diffusion interest, resolution will have to be made in terms of the latter rather than the former. That is to say, research will have to be a secondary concern; hence one cannot expect to conduct definitive research in a practical setting. It is precisely for this reason that so much scientific research is moved into the laboratory, where close control is possible and where research is the predominant interest.

But because research cannot be a prime focus in a practical setting, it need not therefore be a minor interest. It can be carried out with close attention and care. It is simply that the methodology may need to be somewhat less rigid and "pure;" we may have to rely on case studies, say, or audit trails, or some other similarly "loose" form of inquiry, in order to be able to exploit the practical situation in the name of research.

If we take this latter posture, i.e., define research in the sense of testing a theory, what does that mean for CVTE's situation? If you were to follow my suggestions made earlier in this paper, what research could be conducted at the same time?

I think it is clear that what might be tested is the utility of the elitism theory for projecting diffusion campaigns. That is, certain hypotheses emerge from the elitism theory which

could be simultaneously tested, and that would indeed be a useful contribution.

What are those hypotheses? That indeed is a difficult question to answer on the basis of the information I have given you today about the theory. It is the case that given the very constrained view of the theory, it would be almost impossible to generate testable hypotheses therefrom. There is therefore little that I can do here now unless I were willing to explicate the theory in detail and you were willing to sit through such an explication.

I do not want to make a complete "cop out," however, for I can at least hint at what might emerge if we were able to examine the theory in detail and draw out interesting inferences. I can do that by making further reference to the Bhola paper that I cited earlier, and at least communicate several of the inferences that he seems to educe from his somewhat more complete theoretical elaboration.

One interesting notion that Bhola proposes is that the needs, problems, and opportunities that might be identified by an organization such as CVTE and to which they might choose to make a programmatic response is at least as much a function of the perspectives brought to bear on life as it is of the situations which life necessarily forces on me. The crux of an elitist group, it will be recalled, is the system of ideas or concepts which bind it together and which are the raison d'etre for the elitist group's existence. The needs, problems, or opportunities that will be perceived as indigenous to the instrumental elite (or the

masses whom they may service) are clearly a function of that central nest of ideas. Hence one may wish to determine to what extent the elitist group is responding to a "reality," and to what extent to a concern generated mainly by its own perspective. Bhola suggests that "all needs are felt in terms of the systems of ideas provided by the elite."[15] If that be so, then the diffusion units of CVTE have a special problem of interpreting the so-called felt needs to the audience that supposedly feels them. This may be what we mean by "creating a market" for a CVTE product. This is at least an interesting assertion which might be studied in the context of a CVTE diffusion campaign.

Another interesting assertion that Bhola makes is that change of any organization or institution always comes from the outside. The instrumental elite of an organization themselves are, as their name suggests, instruments of another group, defined obviously as the absolute elite. It is this elite group that defines the core ideas and goals, not the instrumental elite. The instrumental elite can initiate changes only in regard to instrumentalities, not to new systems of ideas about goals. Changes that do come must be negotiated with the instrumental elite (a process which may be very consuming of time and resources). Indeed, that assertion seems to be a basic one for the organizational system that I have proposed; it can be erected only through negotiation, and I have suggested a basis for the necessary negotiation. It will be of interest to see whether

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[15]Bhola, op. cit., p. 37.

that assertation can be supported from the empirical facts of CVTE's diffusion effort.

Another assertion that Bhola makes is based on his distinction of full and partial affiliation. He points out that in the experience of international literacy campaigns, more success attaches itself to an effort to teach functional literacy, i.e., literacy in relation to some other aspect of the student's life such as his economic livelihood, than simple literacy. There is a higher degree of affiliation in the functional literacy movement. Or, he suggests that one of the reasons for the relative failure of programs such as Headstart (or vocational education) is lack of full affiliation. He asserts,

> . . . why do so many of our well-intentioned programs . . . fail? The concepts of elite motivation and of partial affiliation can explain why. None of these programs offer to their clients full affiliation into the system. The intelligent and the sensitive understand what the deal is. They don't care enough to succeed.[16]

Thus we may also conclude that the degree of affiliation which CVTE offers will be a chief determinant of its success. Again, a very interesting proposition.

I could give other examples but these three examples will serve to illustrate my point. If we follow the elitism theory in projecting a CVTE diffusion campaign, then the theory can be tested in a variety of ways in the everyday program. My exposition here is of course incomplete; what is required is a detailed analysis of the theory in order to formulate the hypotheses

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[16] Ibid., p. 42.

exactly. Then one could turn to the question of how studies could be mounted to test them.

Finale

You will no doubt be very pleased to hear that I am about to complete my peroration. I cannot claim that I have any high degree of satisfaction with my remarks, a feeling that you may well share. I have never before forced myself to confront the realities of a down-to-earth diffusion situation, and now that I have, I find that some of the advice that I, among others, have been shoveling out over the past few years is not too practical. In its place I have proposed a much more involved organizational strategy. This strategy has the advantage of proposing a solution of at least the same order as the problem, which may of course also means that it is impractical. I would hesitate to assert at this point in time that I am absolutely convinced that what I have proposed will work, even if it proves to be feasible. You can at least have the satisfaction of knowing that I recognize your problem as difficult, and you may yet have the last laugh in that the approach you have worked out may be better than the one I have labored so hard to produce.

ALTERNATIVE DIFFUSION STRATEGIES

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A Paper Prepared for The Center for Vocational and Technical Education
The Ohio State University

Last month the Arizona state legislature passed a new law making public school kindergartens eligible for state financial aid. It appears to be expected in Arizona that this step will spread public kindergartens across the state. Thus, this 150-year-old innovation continues to diffuse westward.

It is instructive to note what the Arizona legislature did not do. It did not mandate the opening of kindergartens in all public school districts. It did not sponsor the demonstration of kindergarten programs at a number of sites throughout the state. It did not mount a new training program for kindergarten teachers. It did not order the state education department to distribute research evidence on the desirability of kindergartens for young children. It did not appropriate funds to develop new curricular materials for kindergarten instruction.

When a state legislature--or any other agency--takes a step like that in Arizona, it presumably carries in its collective mind some image of what the prospective adopter of a given innovation--in this case, kindergartens--is like and what will be required to move him. (On this occasion the Arizona legislature is using a one-tactic diffusion strategy. Other tactics may have been used before and others may be used later.) Any diffusion effort should be grounded on a knowledge of what the innovation itself is like, a familiarity with the kinds of settings it is to move into, and an image of how the prospective adopter typically

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This paper owes much to the writing of Everett Rogers, Ronald Havelock, Matthew Miles, Sloan Wayland, Sam Sieber, Richard Carlson, Egon Guba, and numerous others who have examined the diffusion process in education as well as to those who have studied the phenomenon in other fields.

behaves.

Images of the Practitioner

The practitioner in education--the ultimate adopter of an innovation--can be conceived in many shapes. His ability, his attitudes, his know-how, his present practices can all be imagined. Each conception implies an approach for reaching him. Here are some of the images, each presented in a pure, idealized form:

Image Number 1. The practitioner is a creature of regulation. He exerts power upward and downward toward administrative layers in a heirarchial authority structure. He is relatively powerful in controlling the behavior of those below him, relatively powerless in influencing the behavior of those above him.

His energy level and work output are low. He is understaffed and overworked and quick to say so. He has no reserve capacity of energy. When aroused he is more likely to exert his power by withholding his approval than by granting it.

He cannot be discharged. His chief ambition is promotion within his present organization. Promotion is based on maintaining and making modest incremental improvements in the system; radical changes are dangerous to the orderly progress of his own career.

He responds to the legislative (board, legislature, congress) branch rather than to the administrative (superintendent, commissioner, governor, president) branch and directs any political initiative toward the legislative branch. He cannot be reached directly from outside the organization but is embedded within

the structure and must be reached through the layers above him. He cannot be reached by economic rewards.

Image Number 2. The practitioner wants to do more and do better. He is inherently competitive; he wants to be first. He takes risks. If he fails he recovers quickly.

His chief reward is the sense of forward movement and his secondary reward is recognition for having been first. He enjoys moving his own co-workers forward and sets the pace for them. He wants to associate with others like himself. He exerts influence in all directions--upward, laterally, and downward.

His energy level is high and he always has reserve capacity for new ventures. His work output per hour is high and he works long hours.

He seeks information, consumes it rapidly, makes up his mind quickly, and continues to seek more information. He is quick rather than studious, trusts his own instincts and judgement and does not insist on hard evidence. He responds to ideas which would put him ahead of others. He can be reached from outside or inside the organization, and either from above or below.

Image Number 3. The practitioner is a member of a profession and holds a set of standards for his behavior. Those standards include the obligation to keep informed about new developments, to retain proven older methods until new ones are demonstrably superior, to shift to new methods when they prove better, to continue his own education, to treat clients ethically, to demon-

strate leadership to those less capable than he, to join with others in maintaining and raising standards of work, to resist pressures for change in practice which are out of keeping with current norms, and to interpret standards to those inside and outside his group.

His chief reward is the recognition and respect of others, especially the leaders. He likes to reach decisions by pooling his own judgement with that of the leaders rather than deciding on his own.

His energy level is somewhat above average, his work output is better than normal, and he has a modest energy reserve. He is not susceptible to the threat of discharge unless it is direct and immediate.

He is less persuaded by hard evidence than by the wisdom of his leaders. He is responsive to the demands and requests of clients when they are in line with established norms for his own behavior.

Image Number 4. The practitioner is interested in the uses of power and seeks positions that will allow him to exercise it. Power is exercised by allocating resources--jobs, salaries, office space, secretaries, equipment, travel funds, parking space. These are the rewards for those who assist the practitioner to maintain or increase his power. He trades resources for power. The practitioner favors innovations that put more resources at his disposal or more people under his influence or cause people to increase

their regard for him as a leader. Conversely, he will oppose innovations that reduce the number of people he can influence or lower the estimation in which he is held by others.

He is alert to relations between himself and other people and depends on a network of interpersonal relations to supply information. He relies very heavily on his own instincts and his personal sense of timing in making decisions. His energy output is above average and he has a very large reserve capacity. He is responsive to his constituency and is most seriously threatened by the prospect of losing it.

Image Number 5. The practitioner depends upon his professional tools to give substance and method to his work. He cannot work without tools and he is limited by what they can do. He can use only the techniques for which the tools are designed. A change in the tools tends to lead fairly directly to a change in the practitioner's behavior. However, since he may not be able to use tools very competently, they need to be either so simple that they fall within his level of competence or else be self-contained and semi-automatic so that he does not need to intervene in their operation.

The practitioner's energy level is moderate and his reserve capacity is limited. His work pattern is regular. He thinks the selection of tools is important and looks for serviceable features when choosing new ones. He is moderately alert to new information about the use of tools and is interested in discussing how others

use them, but his own work habits are quite stable and he gives those habits up only reluctantly.

Image Number 6. The practitioner has a limited repertoire of techniques which constricts what he can accomplish. Those techniques are adequate for the routine problems he meets but usually fail to solve the complex ones.

The practitioner hears of new techniques from time to time and is willing to shift to other methods but needs help. His original training equipped him with general principles for carrying out his work but gave him few techniques. If he is to change to new methods, he needs specific guidance in how to carry out the day-to-day operations those methods entail. It is not enough to give him information about new techniques; he must get direct help, an opportunity to practice, and occasional refresher work.

The practitioner is motivated but has a low energy level. He is not competitive and cannot be reached by the prospect of winning a competition. On the other hand, he is troubled by his chronic lack of success with certain aspects of his work and is interested in some kind of solution. He will volunteer for help, or can at least be persuaded to accept it, if it promises to lead him to new techniques for his difficult cases and if he is given modest rewards for accepting that help.

Image Number 7. The practitioner is faced by the constant reality of a lack of funds. He is seldom without ideas, but is often unable to carry them out because they require money. In

fact, he has a backlog of unrealized hopes that await funding. While he is realistic enough to accept fiscal limitations, he is to a certain degree frustrated by the excess of possibilities in contrast to the shortage of resources.

He has sufficient skill to carry out his part of the new work and knows what else to buy if he can locate the necessary financial support. Moreover, he is well motivated and has sufficient reserve energy to operate with greater funds should they become available.

His present funds are reasonably well allocated to ongoing work and cannot be reassigned without disrupting the system and triggering counter-pressures both from inside and outside the institution--pressures he may not be able to withstand.

Image Number 8. The practitioner has advanced skills and a certain creativity in the way he goes about his work. He takes pride in using his skill and resists methods that deprive him of a chance to use his creativity. While he is not able to invent distinctive new methods or materials on his own initiative, he is able to modify the methods and materials developed by others and adapt them, sometimes with ingenuity, to his own circumstances. He does not like to do things exactly like other practitioners, but likes some element of distinction in his own work. If he takes on an innovation, he is likely to modify it so as to make it his own. The changes may be modest and the final result may be quite similar to the original. But the important element is

not the degree of distinction; what is important to the practitioner is that he engaged in redesigning the product.

The practitioner is motivated to improve and has a modest energy reserve for undertaking new work. He is fairly steady in his work habits but he is interested in making an occasional change for the better. He depends more upon his own judgement about what will work than upon general instructions as to how a given set of methods and materials should be used.

Image Number 9. The practitioner pictures himself as sitting on one side of a bargaining table and conducts himself accordingly. Anyone interested in changing his behavior must negotiate for that change. The practitioner will alter his behavior onl, f the price is right. The basic coin in which he trades is salary payments and work load. Improving his working condition in other ways is treated as fringe benefits--desirable and worth negotiating for, but not as valuable as direct salary payments and a favorable work load. Coins that are acceptable in other transactions--professional recognition, additional equipment and materials, the stimulation of working with a group of able colleagues--are worth relatively little to this practitioner. He is especially sensitive to the claims that any new methods and materials would make upon his time and expects to be compensated for any additional effort.

He is competitive in the sense that he wants to negotiate favorable terms for himself. His energy reserve cannot be tapped except through additional compensation.

Image Number 10. The practitioner is a man moved by evidence. He makes his decisions on rational grounds. What he is doing now resulted from a study of the available evidence and he is not likely to be persuaded away from it except by new evidence. His respect for facts is substantial enough that he wants his own direct observations underpinned by hard evidence before reaching a decision. While he recognizes that research results are not available on every choice he faces, he seeks research-based information whenever he can get it.

He has a sense of obligation to change to whatever is proven better than his current practice but he has learned that not many of the alternatives rest on a factual base. He is dismayed that many innovations are promoted without evidence. He has an appreciable energy reserve along with the ability to move to something else once he is convinced. He is not competitive except in the sense that he wants to keep up with what is firmly established as worthy.

Implications of the Images for Diffusion. Each of these practitioners has to be reached by a somewhat different technique. A selection of possible techniques appears later in the paper when specific diffusion tactics are discussed.

Practitioners with the above characteristics may appear in any of several different roles in a local public school system, which we are assuming to be the ultimate adopter of an innovation. They may appear as school superintendent, as business manager, as

as curriculum coordinator, as director of vocational education, as building principal, as department chairman, as classroom teacher, or as paraprofessional assistant. It matters considerably what role they occupy. Bureaucratic behavior may be a far more serious barrier in individual school buildings than it is in the central office. Creativity may be desirable in teachers but objectionable in the business manager who wants to omit the new instructional materials and use the existing textbooks.

There are other roles as well, roles outside the local school district but instrumental to successful adoption of an innovation by the district. For example, university teacher education programs may have to be modified to supply preservice or inservice training in keeping with the innovation. The behavior patterns of the dean of the school of education and professors in key departments may well determine whether the necessary training can be made available in a particular state. Again, state education department officials--and this is particularly true in vocational education--may need to modify regulations or offer leadership so that local school districts can adopt the program. If the state official performs as a bureaucratic functionary, he will have to be approached in one way. If he performs as a professional, he will have to be approached in another way. If he performs solely as an economic man, yet another technique will be called for.

Anyone interested in diffusing innovations through a systematic strategy needs to take into account the kind of man he is

trying to reach and the significance of the role he occupies. But this is not enough. Not all potential adoption settings are alike, which further complicates the task of reaching the adopter.

Characteristics of the Adoption Setting

The circumstances of prospective adopters differ enormously. Some can be reached by one diffusion tactic or strategy, some by another, some not at all. Below is a list of characteristics of adoption settings that have implications for diffusion techniques. They are listed in their approximate order of importance.

Leadership. There is probably no single feature of an adoption setting that is any better for predicting its likelihood of adopting an innovation than the presence of leadership in its professional personnel. Some schools have it almost as a standard feature of every faculty member; some others lack it even in the superintendent. Leadership is a curious characteristic. It is difficult to define and hard to measure yet is immediately apparent to the unaided eye of an untrained observer. Leadership can compensate for any number of shortcomings in the prospective adopter but almost nothing can compensate for its absence. From the viewpoint of diffusion agents, leadership is useful wherever it is found in the organization but becomes increasingly useful in the higher levels of the administrative hierarchy.

Power Distribution. The distribution of power is important because the diffusion agents must understand where to seek approval. Widely dispersed power--power split among teacher's unions, community

groups, student activists, and the school administration--is not especially favorable for innovation. Conditions of intense competition tend to arise when power is widely dispersed; the interest of one group in an innovation may automatically trigger the opposition of other groups. Getting approval of all the parties at interest may prove difficult.

On the other hand, centrally-held power may give the diffusion agents a monolith. If their program is favored, adoption may occur quickly. But if it is not favored adoption may become impossible because the diffusion agents have no alternative way to approach the system except through established central power figures. The most favorable pattern is probably one in which power is shared with lower levels in the administrative organization and is shared to a degree with outsiders such as advisory committees, (giving more points of entry to the system) but is not so dispersed as to create competing groups who have roughly equivalent power and can counterbalance each other.

Growth Pattern. Although diffusion research has had little or nothing to say about growth pattern and growth rates in local school districts, growth may be second only to leadership in making a school a ready adopter. Expansion is heartening; the future stretches out ahead and many things seem possible in the new territory. Stagnation is disheartening; boundaries close in and the road seems to come to an end. Decline is defeating; what has been gained at such high cost begins to ebb away and the urge

to struggle seems to fade. This may be pervasive in the American character. Certainly it is pervasive in schools.

A new community is an inviting target for diffusion agents--new school buildings uncommitted to past programs, new building principals out to make a name for themselves, a newly-recruited faculty perhaps young and not yet set in its ways, curricula yet to be chosen and equipment and materials yet to be pruchased. There is nothing to be replaced, no past committments to be broken.

It may be that one of the greatest deterents to changing education in our large old cities is simply that they stopped growing many years ago.

Size. Extremes in size create barriers to adoption. Very small schools, especially if they are in isolated rural settings, are as difficult to deal with as great cities, particularly if there is no growth. Tiny districts lack talent and resources; huge districts become bureaucratic and develop serious internal communication problems. There is a wide band of sizes--roughly from 5,000 pupils to 50,000 pupils--in which school districts seem susceptible to innovations.

Personnel. Like the caliber of leadership, the quality of personnel is a highly significant characteristic. People who are cosmopolitan rather than local in their orientations and who are career-bound rather than place-bound (useful concepts from the diffusion literature) and who are working as professionals rather than to round out the family income are good inside partners for

external diffusion agents. A degree of responsive local intelligence makes diffusion far easier and leads on to skillful installation.

Level of Spending. The important statistic about the level of spending in a local school district is probably not its rank on a national norm but its rank in the immediate surrounding area with which it competes. In general, the ability of the district to adopt innovations increases as its spending level goes up. This generalization is not perfect and other characteristics of the setting can overcome its importance. Receptivity to innovation is probably higher in a rapidly expanding community of modest wealth than in a stable community of considerable wealth. But there does seem to be at least a threshhold below which a district is an unlikely candidate--perhaps the bottom 20-30 percent of the districts in a given geographic area. There may also be a cut-off point at the highest levels of spending, where districts can become so wealthy that they have not only the ability but also a certain sense of obligation to develop home-grown innovations rather than to classify themselves with run-of-the-mill districts that have to adopt innovations from outside.

Demographic Type. Suburban districts are probably better prospects for innovations than urban or rural districts. This is partly because their size is almost always within the tolerable range and, more importantly, because their growth pattern is usually favorable. However, apart from that, suburban areas tend

to attract and retain the most talented and wealthiest citizens from the city. These people usually expect and can afford better-than-average schools. The result is often a school district with a competitive advantage over both urban and outlying areas and one which is surrounded by a community that expects steady improvement. Thus suburbs tend to offer approachable schools in approachable communities which can afford whatever they decide to adopt. This makes a pleasant stopping place for a diffusion party.

Reputation as an Innovative Location. Quite possibly a district's reputation for innovativeness is simply acquired over time as a result of other characteristics and is not a causative factor at all. And, yet it does seem that a certain momentum is created in some districts that have a strong local tradition of trying out new ideas. Both those inside and outside the institution expect it to be in the forefront. This makes the district more amenable to innovation.

Values. It is common for schools to think that some aspects of their work are more important than others. The basic skills in the elementary schools, the academic subjects in high schools, athletics in many communities, music in a few rare cases, college preparation curricula almost everywhere--these views about what is important condition receptivity to innovations. Those innovations that would enhance construction in high-valued areas

arouse special interest; those addressed to low-valued areas arouse less interest; those which would compete with high-valued areas arouse opposition. Diffusion agents ought to scout the territory to find what local schools and communities think is important before moving into town.

Curriculum Content. If the existing junior high curriculum contains the standard set of sources in home economics for girls and industrial arts for boys, a new junior high career orientation and exploration program that would have the school abandon cooking and sewing and tool handling in favor of general concepts about self-development and multiple career possibilities faces a very difficult challenge. It would be considerably easier to get the latest model electric ranges and a set of power saws installed. Many schools have found that the audio-lingual approach to teaching modern foreign languages continues to have difficulty in the high schools. Some audio-lingual systems deprive teachers of textbooks for much of the first year, making a very difficult adjustment for book-bound teachers who do not speak the language well themselves and whose primary objectives are to teach grammar and reading rather than speaking and listening. In short, what is already in place conditions what can be introduced.

Instructional Practices. If team teaching or a variegated work experience program is already within the experience of a school faculty, innovations that require a new configuration of staff or schedule students outside the building for a major part

of the day will find easier acceptance. The same is true for any innovation that lets the staff continue to act in familiar comfortable roles. Thus some understanding of traditional patterns of instruction in the school can help the diffusion agents know what techniques to use, or whether they should bother with the site at all.

Schedule. Any pattern of schedule that does not cut the day and the week into equal-size segments is generally favorable. A schedule that allows flexibility and can accommodate the unusual needs of an innovation or change during the year is even more favorable. What is most important about a history of adjustable scheduling is the faculty attitude that arises from learning that not everything has to be done in fixed segments and that both teachers and students can negotiate their way through a day that has variety.

Equipment and Materials. Both the quantity of equipment and materials and the particular items already in stock are important in determining whether a school is able and willing to adopt innovations. If the new program requires the use of a computer of videotape recorders, schools that do not have such equipment are unlikely prospects. Conversely, others that have such equipment may be looking for ways to get more use from it.

Facilities. The single most important characteristic of a school facility making it receptive to innovation is having extra space available. Buildings that are in intensive use--say

with a utilization ratio above 85 percent--present a prospective new program with serious competition from what is already underway. Of course, the building must accommodate the irreducible space requirements of an innovation or it is simply ineligible for consideration.

Evaluation System. Since the mid-1960's, a number of schools have strengthened their ability to evaluate new programs. The existence of a sound evaluation system, although admittedly rare, gives the diffusion agents an unusually rational local partner who has probably had experience in helping the staff select and install other innovations, probably in conjunction with ESEA Title I and Title III programs. The evaluator and the diffusion agent can make ready conversation and perhaps common cause.

Characteristics of the Innovation*

Innovations differ enormously. A tactic or a strategy quite satisfactory for diffusing one may not work at all for another. Here are some questions about characteristics of novel programs that have implications for diffusion techniques:

Magnitude. What fraction of the total school program does

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* This section is based in part on material appearing in "Appraising the Effects of Innovations in Local Schools," a chapter written by the author for the 1969 NSSE Yearbook.

Innovations cannot be classified into single categories but they can be described along a number of dimensions. Take a textbook with wholly new subject matter as an example. Old medium, new content. Or take a videotape recording with traditional subject matter. New medium, old content. Is the innovation to be called old or new? A classification is not useful but a multidimensional description is.

the innovation encompass? A new program that touches the work of many teachers in many subjects in many grades will require an elaborate diffusion effort. That effort will have to be directed to the board of control and central administration of the system and cannot be directed solely to lower administrative levels. Moreover, large innovations will require explanations to the public and outside interest groups.

Completeness. In acquiring the innovation, does the school get help with new methods as well as with new content and supporting materials? Or must it finish the conception, determine the methods, and acquire necessary materials from elsewhere? In general, innovations that are complete can be diffused more readily, especially if they do not make it necessary for the school to discard what it is already using. Spreading an incomplete innovation means that the diffusion agents have to establish the school's readiness to supply the missing components before installation can begin.

Complexity. Is the innovation straightforward and simple in operation or does it require an intricate series of interlocked procedures on a set time schedule? The simpler the innovation, the wider its potential audience. Mass techniques of disseminating information about simple innovations are appropriate and often sufficient to trigger adoption.

Flexibility. Can the teacher make substantial changes in the innovation or must he follow a formula to make it succeed. Flexibility makes an innovation more acceptable to practitioners. It also enables the diffusion agents to provide minimum training. Moreover, they can omit any concern about refresher work at later points in time.

Interaction with Existing Programs. Can the innovation be used independently of other programs? Is it helped or hindered by the presence of others? Minimum interaction with other programs greatly extends the number and kinds of settings in which the innovation can succeed. A low degree of interaction also simplifies the diffusion effort. Although it may be desirable for an innovation to interact with programs already in use so as to reinforce their effect, the diffusion effort becomes more complex in such cases because symbiotic programs should first be identified in local schools and the proper relationship may have to be arranged.

Trial Possibility. If an innovation can be tried out before making a permanent commitment, the risk for the school is reduced. Furthermore, the diffusion agents can be far less attentive to the characteristics of the adopting school since the school will make its decision about the innovation after using it rather than beforehand. That is, establishing the actual worth of the innovation for a particular school becomes a lighter responsibility for the diffusion agents.

Content. Is wholly new subject matter being taught or does the innovation simply substitute one set of illustrations and exercises for another? An innovation that conforms to present curriculum content--such as a series of films that do a better job of presenting what is already being taught--will find an

easier entry into a school than films with wholly new content. Thus an understanding of what is already in the local curriculum is important for diffusion agents. If there is no major change in content, the diffusion effort can concentrate on the technical superiority of the innovation but can expect to be challenged very sharply on its cost/benefit ratio since it is adding nothing of substance and must rest its case on efficiency.

Effect on Student Test Performance. While an innovation need not improve student scores on the standardized achievement tests on which many schools judge their success, it must not lower those student scores or it will be in very serious difficulty from the start--regardless of any other pupil gains it may be substituting for those test scores. Diffusion agents should be able to demonstrate that the effect of any new program on pupil tests scores is at least neutral. If the effect is actually negative, the diffusion agents must be masterful at championing what the program substitutes for normal pupil achievement.

Staff Performance. If the novel program demands abnormal amounts of teacher energy, enthusiasm, or creativity, it is suitable for only a limited number of settings. A general effort at mass diffusion is not a suitable strategy since the innovation cannot successfully be brought to life everywhere. A better approach would be self-identification by interested staff members once they are alerted to the existence of the innovation. That is, what is called for is a set of tactics to describe the inno-

vation, along with its demands, and then to ask volunteers to step forward.

Staff Roles. Does the innovation cast teachers chiefly as planners of instruction, presenters of information, managers of recitations, monitors of a self-instructional process, or evaluators of learning? Can what they do be regarded primarily as professional work, as technical, as clerical, or as custodial? In general, as the teacher's role becomes less custodial, and less clerical while becoming more professional, the change will be welcomed. Any diffusion effort should emphasize that the innovation enhances the professional image of the teacher. On the other hand, if the innovation actually demands highly-skilled professional behavior, there are many school systems to which it cannot travel. It is quite unlikely that any form of in-service training that the diffusion agents could devise or afford can supply professional behavior where it did not exist before.

Social Setting. If the people who operate the new program exercise considerable independence of action rather than working under the control of others, the diffusion agents will want to design a training program that is long enough to produce the desired behavior and will include performance tests in which the trainees can demonstrate mastery of the techniques. This is because there will be few opportunities later for them to get feedback on their performance. If the program requires teachers to work in a group setting, as is the case with team teaching, the

training should be designed to train intact work teams from local schools. Moreover, group members should be taught what to expect of each other back on the job so as to reinforce the training over a long period of time.

Equipment and Materials. Are the necessary teaching aids included in a single package or must they be acquired from assorted sources? Are they ready to use or must teachers spend time preparing them further? Are the equipment and materials interchangeable with those already being used in other school programs? A single package of ready-to-use materials that will fit with equipment already in the school system is optimum for rapid diffusion. Diffusion agents working with such innovations will meet less resistance in the schools and can make some use of mass diffusion techniques.

Time. Time is a precious commodity in any school. Innovations that soak up time or cannot be scheduled conveniently into the standard blocks into which the school day is segmented are likely to meet strong resistance. Diffusion agents will be called upon to prove that the innovations make a substantial difference in deeply valued areas of student learning. That is, it is one thing for an effective new reading program to make extraordinary time demands and quite another for a new art program, however effective, to make such demands. In diffusing any innovation, the sponsors should point out minimum time requirements and say whether the innovation will succeed in part or fail completely if these minimums are violated.

Space. Space is not in as much demand as time, but it too is a valuable commodity. Any instructional program that makes exorbitant demands for space is in trouble from the very beginning. Those diffusing the program will need to think about how its extraordinary space requirements can be compromised without doing serious damage to the program. They should work out alternative space arrangements wherever possible.

Cost. Innovations tend to incur initial costs and continuing costs. Each will be of interest to prospective adopters. Schools may be more sensitive to high initial costs than they are to above-average continuation costs. Thus an installation plan that stretches initial costs out over an extended period may help the innovation to diffuse. In general, of course, costs are negatively correlated with ease of installing an innovation. Low costs greatly expand the types of schools into which the innovation can be diffused.

Summary of Desirable Characteristics. It can be said in general that an innovation can be more readily diffused if it is small in magnitude, complete in conception and materials, relatively simple, and flexible in its possibilities for use. It will have easier going if it has little interaction with other programs and can be tried before adoption. Things will go more smoothly if the subject content is an incremental improvement--especially an updating--of what exists rather than a radical departure. Innovations must not lower achievement test scores.

A new program should cast teachers as planners, guides, and evaluators of instruction, leave them on center stage rather than making them components of man/machine systems, require only a normal energy output and make no unusual demands for time, enthusiasm, or creativity. Innovations that place teachers in a complex, interactive relationship with other professionals will meet difficulty. That is less true for innovations that give teachers clerical assistance or other forms of subordinate non-professional help. Complete packages of ready-to-use materials are highly desirable, especially if they come at modest initial cost and are reusable. Innovations that demand extraordinary amounts of time, break the regular school schedule, or require extra space are difficult to diffuse. Finally, low-cost innovations that cost little to start and maintain tend to move more rapidly and last longer.

Diffusion Tactics

A tactic is a specific action intended to achieve a limited short-term objective, such as getting teachers to realize that a given objective exists. Here is a list of specific tactics, no one of them adequate to diffuse an innovation when used alone.

Legislation. Legislative enactments at both federal and state levels have been especially influential in spreading innovations in special education and in vocational education. The explanation lies in the fact that the advocates of special education (parents of handicapped children) and the advocates of

vocational education (employers) have not been able to penetrate the regular school system through ordinary means. This is primarily because the outside constituents--at least at the beginning--had no insiders in the schools with whom they could make common cause. That is, there were no internal advocates for special education and vocational education. Thus the outsiders had to attack from the top at the state level where a great deal of power resides since schools are state institutions. The continued existence of outside special interest groups, along with ingrained habits of promoting innovation through legislative channels, has meant the perpetuation of this approach. One might observe that the outside groups sometimes have more difficulty today precisely because those are insiders who may act not as co-advocates of change but as champions of the status quo.

Administrative Authority. Direct line authority exists in all school systems and is widely used to govern non-instructional operations. It is less often used to govern instruction. However, it is a potential tactic: the superintendent or principal can indicate that he wants something done in a certain way and his wishes will be met, at least in part, if he will take the time to supervise what he has commanded. (Instruction often proceeds throughout the year with no supervision whatever; this is one reason line authority is seldom used to govern it.)

Administrative opposition can of course prohibit an innovation. But administrative neutrality is not sufficient. Positive

administrative endorsement--with or without the direct application of authority--is essential.

Professional Norms. What other respected professionals expect a person to do influences his behavior. Innovations that enjoy the endorsement of professional leaders have a better chance for adoption. But whether or not there is actual endorsement by leaders, it is essential that the behavior called for by an innovation not violate normative expectations for the professional role. For example, most teachers think of a professional as autonomous, although whether this conception of "professional" squares with the situation in other professions is open to serious debate. In any case, an innovation that would require the teacher to file daily lesson plans with the department chairman or principal and get his signature of approval before teaching the lesson would meet instant, universal opposition as violating the teacher's right to autonomy in the classroom.

Leadership Opportunities. The chance to be the first school in a geographic area to adopt a new program, to be seen in the company of distinguished developers, to get the services of the development group in installing the program, to gain the recognition of being a pioneer, to demonstrate the program to others--these are strong appeals to a small but significant class of adopters. For certain schools, this is the only appeal an externally-developed innovation can have. They need to be brought in early or they may never come in at all. Some of those adopters

are reached during the pilot testing or field testing of an innovation while it is still under development. But similar opportunities can be created for other pioneers while the program is quite new and not yet diffused. The careful choice of leading schools for initial installation sites can influence the rate of diffusion.

Prestige of Developers. The composition and quality of the development group is presumably beyond the control of the diffusion agents since it was determined before they arrived on the scene. But they can take care to display the admirable characteristics of those who developed the new program. Some practitioners are especially responsive to this particular appeal. The National Science Foundation course content improvement projects of course have made maximum use of this tactic in arranging for diffusion. It has considerable power.

Pressure From Constituency. Schools and school teachers have three identifiable groups of constituents to whom they must ultimately respond: student, parents, and the general public. It is possible to reach teachers through students, for example, by taking students away for a special summer program and instructing them in a style that the diffusion agents want to see used in the regular school program. The students can return in September, impress teachers with what they have learned, and suggest that field biology, or whatever they have been studying, should be added to the regular curriculum. This will not be sufficient

to bring about the change, but it can help. The same effect may be achieved by running an elaborate series of photo-essays in local newspapers or arranging a cluster of radio or television programs that acquaint parents with some of the distinctive, effective, and exciting programs in career education, for example. It should not be long before parents and citizens start asking pointed questions at school board and PTA meetings.

Even state officials have their own constituencies: the state director of vocational education presumably wants to be well thought of by local directors of vocational education. If a significant number of them can be aroused about a particular innovation, they may be able to move him into action at the state level.

The deliberate use of constituencies to bring pressure on behalf of innovations is a generally neglected tactic--except by those outside of education who want to bring pressure on those inside it.

Command Over Additional Resources. Some innovations give selected school personnel the chance to determine the allocation of new resources. For example, certain plans for team teaching envision a master teacher who will have some influence over what other teachers and paraprofessionals on the team are to do. The team leader may gain command of a budget for instructional materials along with the authority to allocate those materials. The addition of a computer may bring three new staff positions

into the business manager's office. Another innovation may bring a heavy load of audiovisual equipment into the schools, making new allocation decisions possible for administrative personnel. This particular feature of an innovation can be pointed out to those for whom it would have special appeal.

Negotiation. State education department officials are often in a position to influence the spending of state or federal funds yet they may not use them to persuade schools to adopt particular innovations. School boards sometimes sit on their side of the bargaining table without having anything they want to negotiate for in return for the higher salaries they must pay. School administrators are pressed to give planning periods or professional study days or sabbatical leaves and often have nothing specific to ask in return. Sometimes it seems that the only balanced negotiations that occur in a school are those between teachers and pupils, where spirited daily bargaining takes place between two parties who have clear and sometimes opposing objectives. Negotiation can be used as a tactic to promote innovation. There may have been a time when negotiation would have been frowned upon as a tactic for diffusing innovations in schools, but that time seems to have passed.

Funds. Supplying money earmarked for a specific innovation is a well-known, widely-used, and powerful way to diffuse innovations. Extra funds can be supplied to individual teachers, to individual school principals, or to an entire school district.

There are schools that operate so close to a subsistence level that they are virtually unable to adopt a new program unless someone pays for it. There are schools that get such a large fraction of their funds from the state government that they can only adopt what the state is willing to pay for. For both types, money must accompany the new program.

Unearmarked block-grant funds may increase slightly the capacity of a school district to adopt innovations, but there is no guarantee that they will choose to adopt any specific innovation. Earmarked funds are clearly better for that purpose.

New Equipment and Materials. Making available the new equipment and instructional materials schools will need to operate a new program can be considered a "necessary but not sufficient" tactic. That is, arousing the interest of school people in newly-developed materials and making them conveniently available may not be enough to get an innovation adopted, but attempting diffusion without supplying needed materials is almost futile. Admittedly, there are some innovations in classroom practice and counseling techniques and administrative operations which do not require equipment and materials. But it usually proves convenient to represent the concept of any materials-free practice in some kind of printed or pictorial material so that even it does not escape the materials requirement.

The most effective and pervasive system for distributing school materials is commercial publication or production. More-

over, this system decentralizes the costs of distribution by passing those costs along to the adopters.

Dissemination of Information. This tactic has been widely discussed and actively studied. It is probably over-used. Diffusion agents often attempt to substitute it for other tactics because it is relatively inexpensive and does not demand extraordinary talent.

Information can of course be disseminated through printed materials, through broadcast media, through meetings, through face-to-face communications, and so on. It is generally believed that while mass distribution of information at a low unit cost is suitable at the early stages of adoption when practitioners are not yet aware that the innovation exists, it must be supplemented by more elaborate, more expensive communication techniques such as personal contact if the prospective adopter is to be moved along from awareness to actual adoption.

Demonstration. This is another widely-discussed and widely-used but perhaps under-studied technique. The actual display-in-action of an innovation is an excellent way--perhaps the only way--to communicate to practitioners what the program is actually like. There may be something in its intellectual spirit or instructional style that is almost impossible to communicate otherwise.

Demonstration also can be used for the quite different function of persuading a practitioner that the innovation is feasible

and can fit into his school. To convince rather than acquaint him, the demonstration should be conducted in a setting that is recognizably similar to the one he comes from. If this is not done, he must be convinced somehow that the differences between the demonstration setting and his own are not critical and that the innovation can succeed even in his school. The easy way to do this is simply to demonstrate the program in a place that looks like home.

There are special forms of demonstration which could be more widely used. One would be to place newly-trained student teachers in classrooms for the deliberate purpose of demonstrating innovative techniques, hopefully without fanfare, for senior teachers to observe and perhaps copy. Note that such a demonstration answers the feasibility question conclusively.

Participation in Development. An opportunity to work alongside those who are developing the program, as by becoming part of the try-out group of teachers, is an especially powerful way to build not only interest and skill but strong commitment to a new program. The problem is that not many people can be given this opportunity. No development group working on a fast time schedule wants to be anchored down by a large number of participants, however desirable this may be for the eventual diffusion of the innovation. The developers will want to limit the participants to the minimum number needed to carry out the development process itself.

Distributing Semi-Finished Innovations. One interesting substitute for participation in development is the chance to finish a partly-completed innovation. This is adding the fresh egg to the box of prepared cake mix. It is the chance to use a touch of creativity without having to start from scratch. Moreover, it tends to insure that the innovation will actually be adapted to local conditions--although cases of maladaptation have to be expected. Any semi-finished innovation should give teachers a sound conception of the program, most of the materials they will need, and some examples of how to complete the package.

Training. There is no single tactic for diffusing innovations that is as important as training. Any innovation that calls for a significant change in teacher performance cannot be successfully installed without training. Teachers may require training in substantive content as well as in instructional technique. A one-day workshop may be sufficient or a full year may be required.

One barrier to diffusing innovations is that local school districts do not buy substantial amounts of training for their staffs. Teachers generally purchase their own training in the open market. Significantly, the training they buy for themselves is rarely directed to any specific innovation but instead is intended to increase their general capabilities. That is, it is further education. What it takes to move most innovations is further training.

One missed opportunity for better diffusion is in the

federally-supported training programs that are usually disconnected from specific innovations, even those innovations that have been federally-supported.

Supplying Research-Based Evidence. For the fully rational practitioner who is so in command of his own situation that he can base his decisions on reason rather than on non-rational pressures and impulses, research-based evidence is the most significant kind of information. While it will not be sufficient to enable him to behave in a new way, it can be sufficient to make him decide to change. The problem is, of course, that such practitioners are so rare as to be hardly worth discussing. Whether the adopter is a state or local official, a school board member or a classroom teacher, he has to take many matters into consideration (not all of them rational) before adopting any innovation.

For most practitioners, research-based evidence is useful chiefly to buttress a decision they are making on other grounds.

Alternative Diffusion Strategies

A strategy is a general plan of action addressed to a broad, long-term objective such as getting an innovation widely adopted. A strategy consists of several specific tactics such as those listed above. Presumably a sound strategy uses a combination of tactics to get at the particular set of problems that the diffusion agents face.

Given this conception, there is no finite set of diffusion

strategies. An infinite list can be generated by assuming that diffusion has three aspects: it involves (1) placing an innovation with given characteristics into (2) a setting that has certain features and in which (3) the practitioner has customary ways of behaving. Since there is an unending list of potential innovations and an enormous variety of settings as well as limitless ways for practitioners to behave, there is no end to possible strategies. That is, the imaginable combinations of innovations with settings with practitioner behavior is without limit.

Thus, what this paper contains is not a list of alternative diffusion strategies, but the parts of a thinking machine for generating such strategies. Because a strategy must be tailor-made for every case, a strategy-making machine is the most useful device.

Take a sample case. Imagine that a school system has an entrepreneurial superintendent, an economic school board, a professional curriculum director, a teachers' union that acts as a mild adversary, and parents who are satisfied neutrals indifferent except where their own children are concerned. Let it be a small city with no growth, old school facilities, a standard academic curriculum, and a few vocational courses. Say the innovation is the World of Construction course. What is the strategy? Don't arouse the community and don't disturb the high school faculty. Invite the local director of vocational education to an

area meeting, show him the materials, and let him talk to several teachers who have taught it. Ask him to invite his superintendent and high school principal to a demonstration at the other end of the state since no one nearby is using the course. Send the curriculum director a description which points out how the World of Construction overlaps with academic courses and invite him to a statewide meeting of curriculum directors. Persuade the state director to subsidize training for interested teachers. That ought to be sufficient.

Take another case. Imagine a wealthy suburban district with college-minded parents, a political superintendent, a principal who follows at a short distance behind the pioneers, and professional teachers who keep something going in every curriculum area. Let the innovation be a career development thread in high school academic courses. Start with the teachers. Explain the idea from the platform at state meetings of the various academic professional associations but stress that the innovation is incomplete and needs further development and tailoring. Quote John Gardner on the importance of occupational excellence. Mention a few outstanding schools experimenting with the approach. Ask for volunteers who have very strong college preparation programs. Go on to the community. Run an explanation in Saturday Review and a number of college alumni journals. Send an explanation to school board members. Develop the theme that many college-bound youngsters have no idea what they will do in life. Make

the semi-finished curricular materials available on request and start an exchange newsletter among carefully-selected suburban schools cooperating in the effort. That ought to get the ball rolling.

It is probably not necessary to remind the reader that no individual practitioner matches the one-dimensional images given at the opening of this paper. Every human being is more complex than that. To describe even one person, elements have to be taken from several of those images and other elements have to be added as well. Thus matching one diffusion tactic to one individual practitioner may not work.

Moreover, a school is not a single practitioner. Institutional behavior is more complex than individual behavior. The school has to be seen as layered and multidimensional, set in jagged surroundings that sometimes penetrate the structure, and moving out of a tangled past into an intricate future.

Finally, one school is not all schools. A change in a single dimension of the school setting can change the problem for diffusion agents. Thus no single-tactic strategy and no single-strategy diffusion effort is going to work everywhere. Serious diffusion agents need multiple strategies. All of this implies that those sponsoring the diffusion are not limited to their personal efforts but can arrange for universities to supply training, elicit the cooperation of state education department officials, call on the services of educational publishers and equipment manufacturers,

use the journals and meetings of professional associations, alter the content of nationally standardized achievement tests, and do whatever else is necessary to spread the innovation. After all, schools are hard to change.