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ABSTRACT

These studies examine the dissemination strategies of ten selected educational innovations that illustrate a number of the problems and solutions that have emerged from past experience. In studying the diffusion of these products and programs, facts have been sought about what happened between conceptualization and implementation. The study tries to ascertain what was done at each step in the life of a product where a decision could affect its success in reaching users. Although the focus is diffusion, examination of product design and testing is also included, since the actions taken at these stages could have a crucial impact on eventual market success. The products and programs possess a wide range of types and degrees of innovational complexity and success. Their diffusion histories illustrate the diversity of tactics that have been tried. The products discussed have been developed and distributed by various combinations of research and development agencies, other nonprofit agencies, and commercial firms. Key points of general interest have emerged and are summarized to help fill a need in the diffusion literature for facts and inferences culled from practical experience, and to give advice to developers, disseminators, and funding agencies. (Author/MLF)

PROMOTING CHANGE IN SCHOOLS

A Diffusion Casebook

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FOREWORD

If you wanted to bring about a change in education that would be of benefit to children all over the country, how would you do it? You might develop a product--a curriculum, a teacher-training system, a teaching tool--and test that product until you could be reasonably sure that anyone who used it would be able to bring about the outcomes you originally intended. But what would happen then? Would anyone buy the product, and once it was bought, would anyone use it?

Within the past decade, the people who have developed and disseminated innovative educational products have learned a great deal about the problem of promoting change in schools. They have learned that naive expectations will not be fulfilled; the proverbial "better mousetrap" does not sell itself. Instead of just developing and polishing a product and then hoping for the best, they are beginning to think of diffusion, or the process by which an innovation reaches users, as a problem that deserves careful consideration at all stages of the development and dissemination process. This lesson has been learned slowly and painfully through meeting unexpected barriers when the easy solutions--publication of a few journal articles, setting up a booth at a conference, leaving it all up to a publishing company--have proved ineffective. It is only recently that creativity and careful planning have begun to pay off in the widespread adoption and use of some of the products of educational research and development.

This book contains ten case studies that illustrate a number of the problems and solutions that have emerged from past experience. In studying the diffusion of the ten products and programs, we have sought the facts about what happened between conceptualization and implementation. We have tried to ascertain what was done at each step in the life of a product where a decision could affect its success in reaching users. Our focus is diffusion, but in addition to the activities usually called by that name we have also examined product design and testing, since the actions taken at these stages can have a crucial impact on eventual market success.

In choosing programs or products we tried to cut across a number of dimensions that seemed to represent important clues to diffusion success or failure. We did not draw our subjects from a random sample of all available programs. The products and programs themselves possess a wide range of types and degrees of innovational complexity; they include a few that can just barely be called products and one that was a school for teacher education. Some have been notably, even astonishingly, successful (some despite a slow start), while others must be termed failures. Their diffusion histories illustrate the diversity of tactics that have been tried.

The products discussed have been developed and distributed by various combinations of research and development agencies, other nonprofit agencies, and commercial firms. The subjects of the first two studies are R&D products with minimal involvement of commercial firms; they are followed by four R&D products that were commercially distributed, two products that

INTRODUCTION AND SUMMARY OF FINDINGS

Seeking solutions to the educational problems plaguing American schools during the 1960s and early 1970s, research and development agencies came up with a myriad of innovations. The developers assumed that educators would welcome the products and that change would permeate the land. But by now, although the techniques for measuring the pervasiveness of the resulting change are not very reliable, it does seem quite clear that schools have not adopted the innovations in overwhelming numbers. The case studies in this book examine the dissemination strategies of selected educational innovations in an attempt to unravel some of the reasons why the use of the products has generally proceeded at a snail's pace. While developers are quick to point a finger of blame at disseminators, and disseminators turn it right around, we have concluded that blame for an innovation's apparent failure or credit for its apparent success must be spread evenly through development, dissemination, and support for implementation. In this introductory section, we identify some key points in each stage of a product's life where people's choices seem to inhibit or facilitate the product's eventual use.

DEVELOPMENT

To a large degree the success or failure of a product rests in the hands of its creators. Developers have tried to meet people's needs, to follow a rigorous research and development cycle, and to conduct informative field tests. Why, then, have some products not been more successful? It seems obvious, particularly in the light of the cases we have studied, that one of the main factors in the success of an innovation is its form.

Innovations seem to have the greatest prospect for success when they involve a tangible "product" coupled with provision for training.

Many developers made a critical decision about form when they determined that they would develop self-sufficient packages that would not require special training for users. The simulation games, for example, come in boxes complete with materials and detailed instructions. It was assumed that they could be bought and used with little or no training, since it seemed a straightforward matter for teachers to purchase and use them without prior "hands-on" experience. But in fact the developers of simulation games found that the most enthusiastic users were teachers who were introduced to the games through active participation in workshops.

Other developers, who have gone to the other extreme and produced training programs without materials, have also had their share of problems. When Technology for Children consisted of summer workshops for teachers but did not involve any materials, the concepts of the program did not seem to persevere in classrooms. However, when teacher training is extensive, successful innovation may not depend on the existence of a product. The New School

encouraged the spread of open education throughout North Dakota by offering one- or two-year training to teachers.

Not all developers have adjusted to two facts about potential users: they may prefer not to change their behavior, and they may wish to make adaptations in a product.

Products that are fun for developers or intriguing for funding agencies may be difficult to absorb into school settings. Developers and funding agencies alike have been bitten by "media bugs" or "simulation bugs" or similar infatuations. This seems only natural since the mass media and professional opinion give currency to innovations decked out in unique packaging. Practically speaking, however, most schools have neither the equipment nor the inclination to adopt materials that are far removed from current practice.

Developers of the Minicourse, while they did not engage in wild flights of technological fancy, chose to deviate from the traditional approach to inservice teacher education. They pointed out that there was no evidence to indicate that hiring a consultant to give advice and advocate change resulted in changed behavior. Instead, they elected to produce a self-instructional kit with a highly structured program of practice and self-evaluation, focusing on a few precisely defined skills, and using sophisticated electronic hardware. This decision, based on present evidence, had ramifications for the diffusion of the product. Despite evidence of Minicourse effectiveness, the people who make decisions in schools seemed to prefer to spend their money on the more familiar "product" of the consultant. They knew how to schedule a meeting of all their teachers in an auditorium; they had to be convinced that it was worth their while to set up a VTR and schedule microteaching sessions. It seems that the unfamiliar format of the Minicourse impeded its implementation.

Whatever basic design is chosen for a product, a considerable amount of flexibility in this design seems to help in diffusion. The Drug Decision Program, a rather lengthy curriculum, is so tightly sequenced that schools are unable to trim it to fit their schedules. On the other hand, since a publisher began treating Man: A Course of Study as an unfinished or "unpackaged" curriculum with infinite possibilities for adaptation, its implementation has increased greatly.

The meaningful involvement of potential users is an important factor in a successful product design.

Most of the developers studied made some attempt to enlist the help of potential users in the planning and testing of products. Although the stimulus or concept typically came from within the development agency, most developers made a substantial effort to check the idea or a prototype of a

product with samples of potential users. When they didn't, the results were nearly disastrous. Lockheed, a company with little prior experience in education, assembled the first version of the Drug Decision Program without help from users; upon its release the product was a failure, and the company revised its development approach to include user input. Another commercial developer inserted laboratory equipment into the Inquiry Development Program in Physical Science (IDP) without consulting users, and the equipment has not sold well. Some developers have gone much farther than others in the involvement of users and have been encouraged by the results. Teachers who use Man: A Course of Study are given training in curriculum development; to some extent they become colleagues of the developers. The Technology for Children project has developed almost entirely from suggestions and input from participants.

Many developers are falsely led into believing that their products will "sell" because of the favorable opinion of field-test subjects AFTER having used the product.

Remember that a potential user usually must decide whether or not to adopt a project without having had extensive experience with it. Many field-test users were asked whether they liked and would continue to use a product on the basis of a rather complete experience with the product. This seems to be a serious error in the development process, because it led several developers to assume that their products would be accepted when in fact they went over well only after the users had tried them. Distorting two popular cliches, we might say that you can lead a horse to water, but you can't make him drink; only after he's tried it is it possible to determine if he liked it.

Little concerted effort has been made to study the effectiveness of the format in which the new product will be presented to the user. Yet it is on the basis of this format (not his experience after he has adopted it) that he will decide to use it or not. The typical questionnaires accompanying R&D field tests ask the field-test subject to indicate how he liked the product, whether he would recommend it to friends, and whether he would spend a given dollar amount for it. These questions serve only as a measure of consumer satisfaction that may indicate re-use potential and what first users might say to others about a product.

Developers can gain valuable information if they seek the reactions of buyers and facilitators, as well as users, when field testing their products.

Take the Minicourse as an example. Teachers are the primary users of the Minicourse. As a result, the field testing focused heavily on whether or not teachers liked, used, and learned from the Minicourse, and the data suggest that the developers were successful in meeting the needs

of teachers. But teachers do not buy Minicourses. Because of the expense involved and the need for special equipment, scheduling, and released time, administrators usually must take the initiative to secure the course and install it. Minicourse field tests did not reach these administrators. Their reactions were not sought in a structured fashion, and development activities were not undertaken to design the training packages to meet their perceived needs. Similarly the "facilitators" for Minicourses were not studied as carefully as they might have been. From the point of view of the person who must locate a microteaching room, handle scheduling, and find the equipment, the Minicourse often creates problems rather than solving them. The development process did not take these obstacles into full consideration.

When buyers or facilitators were involved in the testing and appropriate adaptations made to their needs, the effort appeared worthwhile. For example, the multiunit school, with all the changes and potential threats it creates for the people who must decide to adopt it, was tested with "buyer" and facilitator needs in mind.

Some developers select field-test subjects who are already predisposed to use the products.

Field-test subjects have never, to our knowledge, been chosen by systematic sampling procedures to represent the product's target market. Developers often choose to work with schools they have been involved with in the past, as in the case of the multiunit school's development. The test users of many products have been people who had a special interest in the product and volunteered to try it. As a result of such methods of selection, samples of users are biased, and when the products are released to the total target audience they meet resistances that have not been studied. The simulation games are a good case in point. All of the field-test users were interested volunteers. In retrospect the developers found that the average teacher was much less enthusiastic than those who selected themselves for participation in field tests.

Developers tend to assume that their products are operationally self-sufficient, and field tests are not always set up so as to reveal operational problems.

In some of the cases studied, the final product contained deficiencies, usually revolving around the procedures for putting it into operation. Instructions were unclear or unrealistic, operational guides or installation guides were missing or incomplete. Salesmen reported that users coudl frequently identify some simple difficulty that was overlooked.

One reason for this deficiency may be that the developers tend to hover over test subjects more closely than they should. It is natural that when the product's attainment of its objectives is being studied, operational details should be minimized. For example, asking the test user to submit data in a specified format may cause him to behave in atypical ways that conceal operational deficiencies. But at some point, the developer must discover how his product will fare when he is not around. Some agencies have created elaborate procedures for conducting "hands-off" tests; others have not. An operational form of Minicourses was developed and tested to determine whether teachers could use the course in a practical setting without assistance from the developer. Since users found the Handbook difficult to use because of its unnecessarily technical language, it was revised.

Development Recommendations

Developers can take several steps to avoid the pitfalls we have identified and to help insure the implementation of innovations in schools. First, it seems apparent that developers and funding agencies should be careful to avoid commitment to a particular product form too early in the game. Alternative forms that might be used should be studied carefully in the light of resources and attitudes prevalent among users. Funding agencies' requests for proposals should not require the prospective developer to commit himself prematurely to any special media format, and some flexibility in committed dollar amounts should be tolerated so as to permit the most sensible format decision.

Second, field testing should be planned so as to yield a maximum of valuable marketing information. Test data should be gathered on the appeal of the product's form to potential users. At an early phase in the development cycle, it is important that the developer study the patterns by which a product will be bought, implemented, and used, and tests should insure that all key figures in this cycle find the product acceptable. Field-test subjects should be carefully chosen to represent the target population for whom the product is ultimately intended. Tests of the package's operational completeness should be structured so as to avoid too much control or involvement on the part of the developer. (The use of unobtrusive data collection mechanisms could contribute greatly to solving this problem.)

During the design and testing of a product, then, developers should be considering the way the market will react to it. They should try to secure the participation of potential users, and they should continually ask several questions about the emerging product: Will it clearly meet a need that is salient to users and also to buyers? Will its form be acceptable to these people? Has it been tested with an unbiased audience and in a setting that is realistic enough to reveal its operational weaknesses?

DIFFUSION

Many different strategies have been tried in the effort to bring about the adoption and use of innovative products. Development agencies have marketed their own products, sometimes with federal support for such tactics as the establishment of demonstration sites. Products have been turned over to large, prestigious publishers and to their teams of experienced salesmen. Networks of linking agents have been trained to provide implementation assistance.

With all of these efforts, why hasn't the use of educational innovations become more widespread? Several stumbling blocks are apparent.

The fact that a product has come from a research and development effort does not automatically increase user demand.

At one time, it may have been thought that products coming out of a rigorous research and development cycle would be readily adopted, thanks to the weight of evidence that they work. However, as we talked with salesmen or the dissemination staffs of developmental agencies, it became clear that they had experienced few instances in which the research or evaluation that took place in the development of a product was a critical factor in its adoption. Evaluation reports and data analyses were of little specific help in the marketing of a product. The demand for a product seems to be more a function of the appeal of the concept or the perceived utility of the product than of how it was developed or even what effect it has. For example, the Toy Library seems to have been used because the idea of parents working with their children at home made sense, rather than because there was evidence that it produced beneficial outcomes.

On the other hand, the institutional prestige of a developer or disseminator may impress purchasers. Those involved in Minicourse dissemination say that the Far West Laboratory's reputation has added to the product's appeal. Man: A Course of Study is disseminated with the help of a cross-disciplinary body of consultants know as The International Faculty, whose professional credentials and experiences seem to enhance the appeal of the curriculum

Distance--either psychological or physical--between developers and disseminators has frequently hampered the diffusion of a product.

Generally, we found that developers completed a product and then turned it over to another group of people for dissemination. Occasionally the disseminators were members of the same agency. In some instances, even when personnel from the development division had been transferred to aid in the dissemination of the product, feelings of competition arose between the developers and disseminators; developers believed that they had a

better understanding of the product and would be better able to handle dissemination. Although we cannot prove that the lack of cooperation resulted in losses in sales, it is unlikely to have helped.

Problems in distribution also seemed to increase in proportion to the physical distance between the developer and those who brought the product to users. In the case of RUPS, a small local printing company handles most of the actual distribution of the product; communication between the Laboratory and the printer is good. But those primarily responsible for disseminating the product, a network of 18 trainers, are isolated from the developers and from each other. Dissatisfaction seems even greater when the publisher is geographically separated from the developing agency.

The result of these differences has been the loss of potentially valuable cooperation. Developers have seldom been able to appreciate and take advantage of the expertise of a commercial sales force. Publishers contend that salesmen have a valuable understanding of conditions in schools, and that if they believe in a product and are willing to expend their time on it, they can convince their customers of its merits. Conversely, the publishers have seldom solicited or listened to advice from the developers. This seems unfortunate since the developer frequently has a great deal of experience in relating the product to users.

The importance of incentives offered to the salesmen, intermediate agents, or others responsible for dissemination, distribution, training, and installation has frequently been overlooked.

For the commercial salesman, there must be enough commission from the sale of a product to warrant his carrying it in his sample case. He likes to handle fairly traditional products, preferably items with built-in "multipliers." (When a product with multipliers is sold to a superintendent, principal, or teacher, the number of actual sales is "multiplied" by the number of students who will need copies of the product.) The ideal sales item, from a commercial viewpoint, is a workbook which must be replaced annually.

By contrast, most of the products of the past half decade of R&D represent a break with tradition. School people may need to make some effort to become familiar with these innovations--and salesmen cannot afford the time to help in this process. Furthermore, many of the products are one-of-a-kind items which do not involve a need for multiple copies. Often the dollar cost of a single item is too low to yield a substantial commission to salesmen.

The lack of financial incentives also extends to the loose networks of trainers that several agencies established. It was hoped that these trainers would find it in their interest to promote a product on the basis of the income they might earn by training adopters to use the pro-

duct. This did not happen in the case of RUPS or the Toy Library, apparently because the effort required was too great and the return too low. If these designs are to work in the future, better plans for supporting the trainers will be required.

The problem of incentives extended even to state departments of education. In one case, when a state department's help was solicited to promote a product, the developer was told that the state department staff would help only if they were paid (as they had been by another developer, who had hired the state department to establish demonstration sites). In addition, states could seldom be induced to help in any extensive way if the state priorities (usually set a year or two in advance) did not happen to encompass the problem the product would presumably solve.

When there was a match between the priorities of a linking agency and a product, a highly successful linkage occurred. For example, one regional service agency in Colorado took the Minicourses and promoted their use in its area without significant help from the developers. Performance-based teacher education was a top priority in their focus, and the Minicourses represented an almost perfect fit.

The concept of market segmentation has had only the most rudimentary use in education, but it seems to hold promise.

Market segmentation is based on the fact that different users have different wants and needs. The total market can be divided into segments that are more or less likely to adopt a particular product; marketing resources can then be concentrated where they will do the most. The Technology for Children staff made informal assessments of different schools' level of interest in the program, and they devoted their efforts to the most probable adopters.

Market segmentation makes obvious economic sense because it allows limited funds to be targeted rather than spread out in a futile effort to capture every potential buyer. Contacting all 16,000 school districts in the United States is considerably more expensive than contacting the 4,000 largest ones, but the 4,000 districts enroll about 80 percent of the nation's students. On the other hand, the very largest of these districts have complex structures and require very special handling by marketers if they are to become extensive users of a new product.

Within the district or the school, the idea of segmentation dictates that the diffusion effort be targeted to key decision makers. In the first phase of diffusion for Man: A Course of Study, the developers held workshops to train teachers both in teaching skills and in dissemination--yet few of the participants were able to bring about adoption of the curriculum. But when similar workshops were held for staff development personnel, many more adoptions resulted, and the publisher now devotes much of its energies to these people.

Simple awareness-oriented advertising efforts are generally not sufficient to lead potential users to purchase a product.

For nearly all of the products studied, vast mailings and magazine, newspaper, and televison publicity campaigns have been conducted. In retrospect disseminators believe the efforts were unsuccessful in accelerating sales unless there was strong, directed follow-up on each lead generated from a general diffusion effort. Advertising may be sufficient for a textbook but not for a complex educational innovation.

The awareness phase is necessary, of course; no one can adopt something he has not heard of. But dissemination staffs have not always used cost-effective ways of presenting basic information to a target audience including buyers as well as users. For example, the traditional approach of setting up a booth at a convention has not proven to be effective, since travel and per diem must be paid for one or two staff members, and records show that few people take particular notice of a display booth.

It is believed that dissemination efforts involving trial experiences are the most effective. Apparently the involvement must be an active, real one, not a passive "show-and-tell" demonstration.

Dissemination personnel have learned that potential users need to be given a real understanding of a product, preferably through trial experience with it. When they presented an orientation on the Toy Library, dissemination staff always tried to include workshops for small groups of people to play with the toys and find out how to use them in learning episodes. The many teachers and students who participated in field tests of the simulation games wanted to purchase games and pressured the developers to release them as soon as possible. The multiunit school is "disseminated" by having potential users attend the first part of an installation training program. On the other hand, elaborate arrangements to have users travel to demonstration sites have not worked when there was no meaningful involvement between the user and the product. It seems that the enthusiasm of test users after their experience with a product, which we have mentioned as a problem in testing strategy, can be an advantage when it is used as a part of dissemination strategy. Salesmen have long known that it is effective to provide potential customers with sample materials, but not all educational developers have devised ways of doing this with their complex products.

Demonstration projects are not the easy panacea that some have thought them to be.

To fill educators' apparent need to see new products in action, a number of projects with substantial federal funding set up innovative products in operational settings. The idea was that people could observe

the product, discuss it with colleagues, and decide whether to adopt it. The evaluation of these projects showed that most visitors commented favorably, but we found only one project that established a connection between demonstration and sales: Minicourse sales did cluster around the sites. In the case of the Toy Library, visitors said that their informational objectives had been met, but few adoptions could be traced directly to their visits.

Why are the results of this tactic uneven? It appears that in addition to the interaction between the product and the prospective user, the effectiveness of a demonstration site depends upon the local people running it; they must be willing and able to attract the interest of nearby school personnel. Some demonstration sites have been operated as service projects, where the purpose is to put the product to work in the local setting and not to help visitors understand and evaluate it. Thus it is important to give site personnel training, suggestions, and support for their role as active disseminators.

Insufficient attention has been given to the cost effectiveness of dissemination efforts.

Commercial salesmen who have worked with R&D products acknowledge that considerable expense is necessary to bring about the adoption of complex, innovative products. A staff member at one publishing company, who believes strongly in the value of the product it markets, is pleased that the company has not done a cost effectiveness analysis of these efforts; it it did, it might drop the product.

Development agencies have given little attention to cost effectiveness. In many cases studied here, dissemination costs were not even recorded, let alone broken down into components. Criteria to measure effectiveness are also missing. Follow-up questionnaires have been used to assess people's reactions to information campaigns, but it is difficult to know what constitutes success. Should a conference presentation result in one hundred people's awareness of the product? Fifty people's understanding? Ten adoptions? In short, objectives have seldom been set and the distribution of resources has almost never been studied.

Diffusion is expensive.

When a product represents a significant departure from the traditional practice in schools, the conventional tools of low-budget educational marketing are unlikely to lead to its widespread use. Awareness campaigns--magazine advertising, direct mail, "show-and-tell" presentations at conferences--are not very costly, but at the same time they are not sufficient to lead to adoption and use. When a product demands attitudinal and behavioral changes on the part of users, it will not find a ready market. Somehow the market must be made ready, but this is not a profitable

endeavor for commercial companies. Despite a belief in the value of IDP as a science curriculum, SRA had to decide to drop it because of the prohibitive cost of promoting its use. The multiunit school has been relatively successful, apparently because a large-scale, long-term commitment was made by the developers and the government to support a complete dissemination/implementation effort.

Diffusion Recommendations

Many of the problems in dissemination are similar for all the products covered in these reports. If educational innovations are to be implemented in schools, it seems imperative that the disseminators take into account these difficulties. The following suggestions are offered to those who will be involved in future diffusion efforts.

Although the fact that a product has come from a research and development effort does not create user demand, in the long run it seems important to us that the educational community value the work of R&D. Though we may need to work with users "as they are," sponsors of R&D work have an obligation to increase awareness and positive attitudes about R&D. To achieve this end will probably require an effort to promote the R&D qualities of specific products as well as a more generalized public information program.

Cooperation and coordination between developers, disseminators, and trainers must be improved. Efforts where the disseminators had a good understanding of the goals of the innovation and its complexities were the most successful. Therefore, it is important that close linkages between the developers and the disseminators be consciously created and nurtured. If innovative products with low multiplier characteristics continue to be developed, the current policy of encouraging distribution through commercial firms employing salesmen should be carefully reviewed, and alternative strategies should be considered.

In addition, the design of a product should carefully consider how the key "linkers" will be involved and what incentives can be tapped to activate and maintain their relationship. This analysis should not assume altruistic behavior on the part of all educational professionals but rather should look at questions of economic incentives as well as programmatic incentives that derive from locally-set priorities. This point is of particular concern in dealing with state departments, which seldom have more than a few operational priorities in a given year. Since these priorities are usually set several years in advance, any plan that proposes to involve state departments (or other public agencies) should carefully assess the "fit" between the proposed product and the probable priorities of the agencies at the time the product is completed.

It is generally believed that simple awareness efforts are not sufficient to lead potential users to purchase a product; this is not meant to suggest that these efforts should be discontinued. Controlled studies of these efforts and their effects should be conducted to determine the actual influence on potential users. It now appears that resources are more effectively allocated to dissemination activities which involve the potential user in a trial experience with the product. Large-scale demonstration efforts should only be undertaken with extensive training and support for site personnel. Any effort to disseminate information or awareness must be closely coupled with personalized follow-up or much of the effort will be in vain.

Before any detailed analysis of dissemination efforts can be conducted, agencies will have to keep more precise records of their expenses and their results. Even then, it will be difficult to ascertain quickly the success or failure of an innovation, since the cycle of change in schools is relatively slow.

IMPLEMENTATION AND TRAINING SUPPORT

Many developers and disseminators have assumed that their products were operationally self sufficient and that implementation would pose no problem. Gradually they have come to realize that school personnel need training, assistance, and encouragement. Our study of educational innovations has highlighted several ways that developers and disseminators can help users successfully implement innovative products.

Helping potential adopters locate money for a product has had good results.

A statement heard frequently from non-adopters is, "We can't afford it." Some agencies have addressed this problem directly, either by subsidizing adoption or by helping purchasers to find outside funding. As an incentive to users, the Technology for Children Project supplies $600 per teacher, to be used for whatever materials or support seems to be needed in the first year a school has the program. (After the first year, funding is the users' responsibility.) The publishers of both the Drug Decision Program and Man: A Course of Study have worked with schools seeking outside funds to support these programs. There is no question that financial support has helped many innovations.

Many, if not most, of the products of R&D demand training for users, but this is not always recognized early enough.

It is fairly obvious that a new curricular approach requires some teacher training, but it has been less obvious that a teaching tool, like a simulation game, or a packaged program for teacher education,

like a Minicourse, will be used more effectively if users are given personal guidance beforehand. In both these cases, methods evolved for providing training: the developers of the games and one of the salesmen held workshops for teachers to play the games and become familiar with them; Minicourse purchasers sometimes had implementation help from the developing agency, the publisher, or an intermediate agency. However, it is admitted that these ad hoc efforts were inadequate and that assistance for users should have been built into the dissemination plans.

The Toy Library program revolves around training for parents, yet because the materials and the training are obtained separately from different sources, people often acquire the materials alone. Partial implementation is the result--although the developer never intended the toys to be used without the training. This problem illustrates the need for a structure to guarantee the inclusion of needed training; it cannot be assumed that users will seek out a training program on their own.

The multiunit school, on the other hand, does not involve a package of materials (except for /I/D/E/A/'s support materials); adopting this change means embarking on a program of training for the entire school staff. Because training is so critical, the two agencies involved with this innovation carefully set up systematic programs that include workshops, clinical training, and inservice institutes for graduate credit. The Wisconsin R&D Center has stressed professional development for school staff, who can earn graduate credit at participating universities as they acquire their training. The incentive of increasing one's professional competency has also been used to good effect in the diffusion of Man: A Course of Study. Training is required for teachers who implement this program, to prepare them not only for its particular content and techniques but also to engage in their own curriculum development to complement it.

Training systems can be a useful way to involve a variety of linking agents in diffusion.

Some agencies established networks of agents to provide training. The most striking example of this tactic has occurred with RUPS, a training package that is so tightly structured, its developers claim that most trainees can conduct training themselves. Therefore its dissemination depends heavily on a multiplier effect whereby every user becomes a change agent. Besides this avenue of diffusion, RUPS has a more formal network of regional training representatives, but as we point out above, in this case and the case of the Toy Library, the incentives for these people to conduct training have not been very great. When inservice training was obviously the key to successful implementation, agencies usually set up a system to deliver this training, and the system also served an important diffusion function.

Problems arise in the process of implementing an innovation, and users need a source of help with these problems.

Various arrangements have been set up so that adopters can be helped in solving the problems that a new product may bring with it. After the end of the Minicourse demonstration project, at least one site coordinator continued to serve as a consultant for nearby schools where the product was in use. North Dakota's New School had field agents who visited the interns teaching in classrooms around the state to bring encouragement and new ideas. The multiunit school diffusion plans have designated linking agencies to work with implementing schools; as well as providing training, a linker maintains a flow of communication with a group of schools. Under the /I/D/E/A/ plan, there is a great deal of cooperative problem solving between schools, through such activities as week-long exchanges of staff members. The advantages of sharing the implementation experience may account for a pattern noticed among users of RUPS: when several teachers from the same school have gone through the program together, they are more likely to make use of RUPS in their day-to-day work.

Once the novelty of innovation has worn off, many products have no built-in incentives for continued use.

In the long run, the benefits derived from a product should insure its use, but after adoption and before benefits can be seen, users' interest may lag. Of course developers cannot work miracles; no one can design a product that will jump off the closet shelf into the arms of teachers and students. However, the plan for implementation support should include ways of motivating adopters to continue using the product. Some disseminators have set up mechanisms to establish and nurture users' commitment to making the product work, so that implementation can be sustained. In the case of the multiunit school, adopters are asked to give written assurances of their willingness to implement the innovation. The distributors of Man: A Course of Study give teachers a grounding in the principles of curriculum development so that they can adapt the course extensively, and staff members are pleased with the enthusiasm that this plan elicits from teachers.

In some cases, the quality of implementation was monitored; in other cases, it was not. When it was monitored and fed back to the development process, the outcome was rewarding.

Many products pass from the developer through the disseminator to the user with no method of insuring correct use. The toys that are part of the Toy Library, for example, can be purchased without any information or guidelines, and while parents may be using them in situations adverse to learning, the developers have no way of knowing this. Some products are assumed to be so self-explanatory that no monitoring is necessary: the developers of RUPS point with pride to the fact that trainees can become trainers, thereby diffusing the product without any assistance from the Laboratory.

However, since no one would call a multiunit school self-explanatory, there are procedures for monitoring its implementation. The long-term commitment of the developers to work with users over a period of several years, to keep reinforcing the desired outcomes, and to make modifications necessary to insure use is probably one of the major reasons that the multiunit school has been adopted as widely as it has. For most products, which occupy a middle ground between these extremes of simplicity and complexity, follow-up may or may not be provided, but it is almost always needed.

Implementation Support Recommendations

Developers may continue to create impressive products, but unless they are used, the effort is futile. It is apparent that unless steps are taken to insure successful implementation of innovations, schools and educational practices will change only slowly. Developers and disseminators of successful products have come to realize that much time and energy must be spent in providing extra help and support to those who seek to implement a complex innovation. As a first step, they often help potential adopters locate sources of funding for new programs and products. For most innovations, staff training must be set up to guarantee that users will receive it. These training arrangements may have a beneficial impact on diffusion, particularly when they provide the adopter with incentives such as increased professional prestige.

Those who have aided in the successful implementation of products have developed mechanisms to help users in solving the problems that inevitably arise. While monitoring use of the product, they also motivate educators to continue to use the product. Organized implementation assistance has been the key factor in the success of many innovations and the spark leading to impressive changes in educational practices.

MULTIUNIT SCHOOL/INDIVIDUALLY GUIDED EDUCATION

PRODUCT SUMMARY

Product name: Multiunit School/Individually Guided Education (IGE)

Developer: Wisconsin Research & Development Center for Cognitive Learning, Madison, Wisconsin. Additional development by /I/D/E/A/ (Institute for Development of Educational Activities, Inc.), an affiliate of the Kettering Foundation, Dayton, Ohio.

Distributor: Adoption and implementation through about 100 regional linking agencies.

Description: Multiunit school (Wisconsin R&D Center's model) - An organizational system that replaces traditional, self-contained classrooms with larger, nongraded units. In each unit, a unit leader, two or three staff teachers, a first-year teacher, a teacher aide, an instructional secretary, and an intern work with 100 to 150 students in a three- or four-year age span. Unit leaders and the building principal make up the Instructional Improvement Committee and cooperatively define the school's educational goals. At the district level, the Systemwide Policy Committee (central office administrators and consultants, principals, representative unit leaders and teachers) develops policy guidelines and coordinates the use of human and physical resources.

IGE (/I/D/E/A/'s model) - Organizational change does not have to be made at once. Eventually, there are large units of students (Learning Communities) and a Program Improvement Council of building staff (like Wisconsin's Instructional Improvement Committee). Participating schools work together in Leagues of eight to 15 schools; to share problem solving and new development.

Objectives for both models center around cooperation among staff members and individualized learning for students.

Cost: ./I/D/E/A/ inservice materials - $250 to $450 per school. A fee may also be required for membership in a League of adopting schools.

Wisconsin R&D Center says start-up cost may be $8 to $22 per pupil, for additional staff and materials, but some schools have no extra start-up cost.

Continuing expenses need not be any higher than in traditional schools. In a few cases, they are lower.

Target market: Elementary schools and, recently, secondary schools also. (/I/D/E/A/ has now developed materials for junior high schools, or middle schools, and high schools.) No special demographic characteristics favor adoption, but staff must be in philosophical agreement with IGE objectives and practices.

Evaluation: Wisconsin--Three-step iterative sequence of development and evaluation, including expert review, consumer opinion, and empirical data on success in meeting criteria. Observation, structured interviews, and questionnaires were used to measure attainment of organizational and instructional specifications and administrative objectives. Overall results reported in 1971 indicated that I&R units functioned "reasonably effectively," as did "the majority of ICCs," and that the effectiveness of SPCs was still in doubt.

Oregon's Center for the Advanced Study of Educational Administration conducted a longitudinal study of task structure and specialization, working relationships, decision making, and job satisfaction. Results, in terms of experimental vs. control groups, showed progress toward objectives.

Student learning has been evaluated only in connection with the R&D Center's IGE curricular materials.

One researcher has studied children's attitudes in a sample of 25 schools--13 multiunit and 12 control. Multiunit pupils had more positive attitudes toward themselves as learners, other pupils, instruction, school in general, the school plant, and the community; no attitude difference toward teachers and administrators; and no difference in attendance or tardiness.

/I/D/E/A--Procedures now under development will assess the degree of implementation of IGE. Inter-rater reliability and validity now seem satisfactory.

An opinion polling agency has begun longitudinal study of attitudes of students, teachers, parents, and administrators. A university has studied school climate by the case study method.

Current status: Can be implemented by working with one of the linking agencies. The idea is also being extended to secondary schools, and staff training is being incorporated into preservice teacher education.

Innovative effects: IGE alters the traditional organization of schools. Instead of one autonomous teacher in each classroom, there are teams of staff members working with large, nongraded groups of pupils; decision making becomes cooperative, with a system of staff committees at different administrative levels. Instructional processes change in the direction of individualized, diagnostic-prescriptive methods. In adopting IGE, a school commits itself to a thoroughgoing program of inservice training in which the staff learns to work in the new task structure.

Synopsis of diffusion: The key to both agencies' diffusion strategies has been heavy implementation assistance, an approach which they credit with producing the innovation's apparent success. Regional linking agencies coordinate the extensive inservice training that a school undertakes in adopting IGE. These agencies also supply needed help with any implementation problems, and this outside support seems to contribute to continued staff enthusiasm at adopting schools.

In Wisconsin's program, statewide networks consisting of the state education agency, teacher education institutions, and school districts provide inservice training. When a school begins to implement the program, some members of the building staff receive training in the fundamentals of the multiunit organization, and then they play an important role in the training for the other staff members. Cooperating teacher education institutions hold summer institutes for personnel from multiunit schools and are beginning to provide academic-year courses as well. (The incentive of increased professionalism seems to help nurture school people's commitment to the innovation.) As /I/D/E/A/ sees it, an important reason for adopting IGE is the opportunity for intensive staff development. With some guidance from a "Facilitator" at an intermediate agency, the staff makes up a plan for continual inservice training. "Leagues" of IGE schools exchange ideas--and even personnel. Because this is such a complex innovation, the developers recognized the need for implementation support consisting of training, problem-solving help, and continuing encouragement.

Wisconsin is one of very few agencies that have kept careful records of the costs and results of various diffusion tactics. They have been able to revise their strategy in light of this information. One part of their expenditure, the subcontracts to linking agencies, may not have been absolutely necessary; /I/D/E/A/, which has not furnished such incentives, has also set up a functioning network of intermediate agencies.

THE PRODUCT

Individually Guided Education (IGE) stretches to the limit our definition of an educational product: to implement this innovation is to effect a whole collection of changes in a coordinated fashion. It alters instructional methods and the relationships among school staff in the effort to work toward the two goals of individualized learning and shared decision making. IGE launches a frontal attack on the tradition that gives one teacher autonomy in the classroom.

Development and diffusion of IGE have been conducted by the Wisconsin Research and Development Center for Cognitive Learning and by /I/D/E/A/ (Institute for Development of Educational Activities, Inc.), and the two agencies have come to define the innovation somewhat differently. For the R&D Center, IGE is a total system of education that they have only begun to develop. It also includes curricula and other emerging products like motivational-instructional procedures. Its first component, the multiunit school, is the innovation discussed in this study where the R&D Center's activities are concerned. The multiunit organizational plan replaces traditional, 25-pupil classrooms with larger, nongraded units. Each unit has 100 to 150 children in a three- to four-year age span, and instruction is handled by a team of a unit leader, two or three staff teachers, a first-year teacher, and an aide, helped by a secretary and an intern. The unit leaders work with the building principal as an Instructional Improvement Committee that defines the school's goals. Policy development and resource management are handled at the district level by a Systemwide Policy Committee, which includes principals and some unit leaders and teachers, along with central staff.

For /I/D/E/A/, on the other hand, IGE is defined as a process of continuous staff development for schools. An organizational change very similar to Wisconsin's multiunit plan does take place in IGE schools working with /I/D/E/A/'s plan: there are large units of students called Learning Communities and a Program Improvement Council for cooperative decision making among building staff. Staff development activities are also a part of Wisconsin's model; however, Wisconsin's IGE includes curricular components, and it is Wisconsin's multiunit school that corresponds roughly to /I/D/E/A/'s IGE.

To the R&D Center staff, the multiunit design represents an organizational change which restructures the school and thereby leads to greater staff cooperation and individualized learning. To /I/D/E/A/, IGE is a teacher training program accompanied by organizational change; like the multiunit design, IGE has the objectives of staff cooperation and individualized learning. In other words, the two agencies seem to differ as to the relative emphasis given to the structural change and the inservice program. Still, since the R&D Center does provide heavy inservice support for the change, the difference is not a crucial one in practice.

/I/D/E/A/ and the R&D Center also differ in the materials that they have developed for schools. /I/D/E/A/, contending that the presence of new curricular materials cannot substitute for inservice training in enabling teachers to implement IGE, has not developed any materials for classroom use. The R&D Center does not claim that its IGE materials will automatically lead to change; however, it has developed a number of curricular products such as the Wisconsin Design for Reading Skill Development. /I/D/E/A/, on the other hand, has engaged in relatively extensive development of materials for inservice training and has produced a package costing between $250 and $450 which adopting schools must purchase.

An integral part of this "product" is the implementation support provided for adopters by linking agencies. Wisconsin has assisted state departments of education in organizing statewide networks - consisting of the state department itself, teacher education institutions, and school districts - and personnel from these networks help organize the workshops that accompany a school's change to the multiunit plan. /I/D/E/A/'s intermediate agencies include the central offices of large school systems, universities, present and former Title III centers, regional laboratories, and archdiocese offices as well as state departments. In each participating organization there is a "Facilitator," a staff member who coordinates the cooperative inservice efforts of eight to 15 nearby IGE schools.

DEVELOPMENT

Wisconsin R&D Center

Target users worked with developers in the initial planning of the multiunit school. The product's history can be traced back to the meetings in 1964-65 of a Schools Planning Group comprised of people with three different perspectives: the group included representatives from the R&D Center, the State Department of Public Instruction, and 13 school districts in Wisconsin. At their meetings, the group searched for ways of coping with problems and sustaining innovations in the schools. Reflecting on the concerns and ideas that had been voiced, Dr. Herbert J. Klausmeier of the Center decided that a new plan of organization for school would facilitate improvement. Development then began on the concept of nongraded "Research and Instructional Units."

The innovation was intended as an "umbrella" to cover and combine several related changes, including team teaching, differentiated staffing, accountability (through ongoing examination of successes and failures), shared decision making, and individualized instruction. Developers pointed to the desirability of making a number of changes at once, and they still mention that the school people brought together in 1965 expressed a wish for overall change that could help them avoid the pitfalls of piecemeal reform.

From 1965 until 1968, the concept of IGE remained flexible as it was tested in schools. At first one goal was to allow more research in the classroom, much of it conducted by the teacher, but eventually this idea was subordinated to the goal of individualized learning. Roles for staff members came to be defined in more specific terms as the model evolved.

The "field tests" for the multiunit school could not consist of brief exposures to the "product"; in order to use it, a school had to spend a year or more implementing the changes. In this special situation, Center staff members realized the importance of testing the product's implementation procedures.

Formative evaluation had four areas of focus: the feasibility of implementation procedures, attainment of organizational objectives, the IGE reading component (a curricular package including diagnostic-prescriptive techniques), and cost/benefit estimates. Observation, structured interviews, and questionnaires were the procedures used.

As fifty schools in Wisconsin began using IGE, Center staff observed the operations of the instructional units and of the buildings' Instructional Improvement Committees. Evaluators concluded that progress was being made toward meeting the organizational and instructional criteria. They also pointed to the diffusion of the multiunit model, from seven entire schools in 1967-68 to fifty in 1969-70, as evidence of the innovation's feasiblity. Some problems were found at the district level, where administrators tended to use traditional decision-making patterns instead of the Systemwide Policy Committee.

Another evaluation team, from Oregon's Center for Advanced Study of Educational Administration, used structured interviews and questionnaires in six schools, three of them multiunit and three controls, to study the attainment of organizational/administrative objectives. They found that the multiunit schools were making progress in the areas of task structure, working relationships, decision-making structure, and job satisfaction.

There have been many other programs of evaluation, which are described at length in Wisconsin R&D Center publications. The major programs summarized here are outlined in more detail in Technical Report No. 158, The Development and Evaluation of the Multiunit Elementary School, 1966 to 1970, by Herbert J. Klausmeier et al.

/I/D/E/A/

/I/D/E/A/ staff members, too, have done developmental work with IGE. Although some of the original ideas came from Wisconsin, /I/D/E/A/ has conducted its own program of research and development in the area of change in schools. Much work in nongraded instruction has been done by John Goodlad, who directs the Research Program in Los Angeles. The Research Program has studied the process of innovation, while the Innovative Programs staff in Dayton, Ohio has been putting together materials and procedures for the implementation of IGE. In 1969, /I/D/E/A/ and the R&D Center agreed that they would both work with this innovation.

/I/D/E/A/ has produced materials for implementation assistance, including a set of 15 filmstrips with audiotapes, a study guide, and 11 other print documents, with a price of $250 to $450. Four films have also been produced and are used by intermediate agencies.

Development of these materials got underway in 1969, as one step in the evolution of /I/D/E/A/ staff members' theories about change in schools. The director of Innovative Programs explains the progress of their theories in this way: At first they believed that change could best be stimulated by outsiders going into schools. Next they became more interested in new materials as aids in change, and it was at this point that development of the inservice package was begun. When new materials seemed insufficient, the developers advocated a combination of consultants and materials. Now they are convinced that outside influence alone is unable to produce change and that the best change results from inservice training that is managed from inside the school.

Evaluation by /I/D/E/A/ did not begin until 1972, when it was felt that the "product" of IGE had taken shape. Instruments have been developed for teachers and observers to rate practices in a school for their consistency with IGE objectives. The instruments have been tested with samples of up to 600 schools. As of mid-1973, there was good reliability among outside observers and a constant amount of difference between observers and teachers. Another study has been started by a public opinion polling firm, examining attitude change over time among students, teachers, administrators, and parents.

DIFFUSION

All things considered, IGE is not an innovation that can be adopted easily. Disseminators at both agencies have planned for heavy implementation support to be provided by linking agencies that form close ties with the schools. The multiunit plan is most readily implemented by a school that can be served by an existing linking agency: a participating state department of education, school district, university, Title III Center, or archdiocese office. To adopt and implement the multiunit organization, a school enters into a signed agreement to cooperate in the inservice training program, and a series of workshops and institutes for learning about IGE then begins. In order for staff members to participate in these, avail themselves of consulting help from the linking agency, and cooperate with other adopters, a school should be located near the intermediate agency.

Wisconsin R&D Center

From the time when the first nongraded units were set up in three Wisconsin school districts, inservice training has been a vehicle for

development and diffusion. In 1966, summer institutes for graduate credit brought teachers to universities, where they studied techniques for conducting research and improving instruction. Professional development for teachers is still a cornerstone of the R&D Center's implementation strategy.

The Wisconsin State Department of Public Instruction was an early participant in the growth of IGE, thus setting a pattern for the continuing reliance on linking agencies. As schools began to make the shift to the multiunit organization, state department personnel helped to publicize the innovation. And in 1968-69, it was the state department that set up a demonstration project for the multiunit school. In this project, organized in cooperation with four teacher education institutions, eight "lighthouse" multiunit schools were established and educators were encouraged to visit them. By the end of the year, there were 35 new multiunit schools in Wisconsin.

The major diffusion program for the multiunit school was funded in 1971, when the Wisconsin R&D Center received $642,000 per year for two years from the National Center for Educational Communications (NCEC), the Bureau for Educational Professions Development (BEPD), and the National Center for Educational Research and Development (NCERD). The strategy for implementation is based upon a network that links the R&D Center with state departments of education, local school districts, and teacher education institutions. Much of the federal funding has been used in subcontracts with these agencies, which carry out programs designed by the Center that range from one-day workshops to full academic year degree programs. The establishment of statewide networks of SEA's, LEA's, and universities reflects the desire of the Center staff to withdraw from participation as the IGE system is put into practice in schools. They believe that their mission is to engage in research and development, and that other agencies, given some guidance, are best equipped to create the "facilitative environment" that allows IGE to take root.

Diffusion activities were organized into a four-phase model:

- °awareness
- °implementation
- °refinement of concepts and practices
- °institutionalization

This model reflects the long-range view taken by the Center staff in that a substantial portion of the implementation grant was spent on graduate-level degree programs and inservice institutes.

Awareness. The first step in the awareness phase, in spring 1971, was a direct mail campaign in which 29,058 eight-page brochures were sent out nationwide. The primary target audience was elementary principals; secondary audiences consisted of superintendents, elementary coordinators, and people from university schools of education and state education agencies. A follow-up study suggested that for at least 10,000 recipients, or about one-third, this mailing was the first exposure to IGE. The brochures included reply cards, and 801 of the 29,058 were returned (a rate of 2.8 percent).

Respondents were sent copies of a more detailed booklet and were invited to information-giving conferences. The objective for these one-day conferences was to supply decision makers with enough understanding of the multiunit school that they could either decide to adopt it or request other data they needed. The conferences ultimately drew a total attendance of close to 500 at five sites chosen for their convenience to the interested people: Washington, D.C.; Atlanta; Madison, Wisconsin; Lincoln, Nebraska; and San Francisco. Information was presented by a developer and a user of the program. A second series of awareness conferences is being held in eight locations around the country in 1974. R&D Center staff members are conducting these conferences, but other agencies in the implementation network are also assuming responsibility for awareness activities.

Implementation. Activities in the second phase, implementation, began in 1971-72 under subcontracts with nine state departments of education. Each one agreed to install and service a specified number of multiunit schools by obtaining written commitments from schools, providing training and consultant services, establishing a cooperative network of schools and teacher education institutions within the state, and participating in an evaluation of the results.

The implementation phase began when a school made an initial commitment to use the multiunit design. Before training began at the building level, administrators and central office personnel attended a one-day workshop to prepare them for leadership in the change process. The next step was a three-day workshop for building principals and prospective unit leaders. The staff members at the district and building levels put their training to work just before school opened in the fall, when they conducted a three- to five-day workshop for the entire building staff, with assistance from Center personnel or linkers. Then, throughout the year, the building staff members developed their skills in a series of four half-day inservice sessions. The first workshops in a state or region were conducted by the R&D Center staff, assisted by a coordinator from the state IGE network, who directed later workshops alone.

The R&D Center developed some materials for use in this phase. A paperback book entitled Individually Guided Education and the Multiunit Elementary School: Guidelines for Implementation, written in 1971 and revised in 1974, gives an introduction to the structure of a multiunit school and the techniques for implementing it. The developers also offer a film, six filmstrips with audio tapes and print guides, transparencies, and nine other print documents.

Refinement. In the refinement phase, experienced personnel from multiunit schools attended week-long institutes on university campuses to strengthen their skills. Sample topics of study for unit leaders included: writing behavioral objectives, planning and carrying out instructional programming, using group dynamics techniques, and planning staff development for the unit. Seven universities received subcontracts to conduct these institutes. Teacher education institutions participating in the state IGE networks are continuing to provide this support to school personnel. Wisconsin staff members designed this phase to forestall a loss of commitment once the novelty of the innovation wore off.

Institutionalization. The fourth phase of the developers' model is now undergoing some change. Initially, four teacher education institutions set up fellowships for year-long degree programs in the concepts and practices of IGE. But the programs were expensive, and only 38 individuals received fellowships. Because of the high per-person cost of this approach, alternative ways of building IGE into the preservice curriculum are now being developed. Some universities now offer courses related to IGE, and the University of Wisconsin is planning a project to develop training materials for preservice use. This new project has been granted three-year funding of $1,300,000 from the Sears Roebuck Foundation for the development of multimedia materials for the undergraduate and graduate levels.

/I/D/E/A/

In 1969, /I/D/E/A/ and the R&D Center drew up a one-year agreement under which /I/D/E/A/ began to produce inservice training materials for IGE. Since that time, the /I/D/E/A/ diffusion plan has evolved separately and has become distinct from the Center's plan, with the development of new materials and strategies for implementing schools. Although the agencies have cordial interactions, there are areas of disagreement revolving around: 1) the inservice materials to be provided to adopters, 2) the methods for inservice training, and 3) the financial arrangements with linking agencies.

The materials developed by /I/D/E/A/ have been described above; they are multimedia in nature, cost between $250 and $450 altogether, and must be purchased by participating schools. Wisconsin has developed some less expensive materials.

A second difference between the two diffusion strategies is that the /I/D/E/A/ program for implementing schools relies less on systematic help from outside agencies, such as teacher education institutions, for inservice training. Instead of scheduling a set of workshops for implementation and refinement, /I/D/E/A/ strives to encourage perpetual staff development which is coordinated by linking agency personnel but which derives much of its impetus from the schools themselves.

A third difference between the strategies of the two agencies is that, unlike the Center, /I/D/E/A/ does not award funds fo the intermediate agencies with which it works. Some 80 agencies have entered into an agreement with /I/D/E/A/ under which each provides one full-time "Facilitator" to work with a League of eight to 15 schools in its geographic area. The expenses of the Facilitator's salary and a full set of inservice materials are borne by the intermediate agency. This policy is based upon the belief that if an agency is funded for two years, there is no guarantee that it will continue its work for five years, and that in fact it is highly unlikely to do so.

How does /I/D/E/A/'s implementation program for IGE operate? Before a school embarks on the program, the principles of IGE are fully discussed with everyone who will be involved. Since community support will be important, staff members from /I/D/E/A/ or a linking agency, when invited in by a district, first hold a "Clue-in Conference" for the lay public and the school board. This conference, which is directed primarily to laymen, is followed by an overview for professional personnel in a school--the superintendent, principal, and key staff. At this one-day session the objectives of training in IGE are presented and discussed so that the school staff members can decide whether these coincide with their own philosophy.

If a school decides to use IGE, it enters into a formal agreement with an intermediate agency, thereby joining a League of schools. Along with personnel from five to eight other schools, the principals and 20 percent of the staff take part in an inservice workshop that is held in clinical conditions in still another school. (It is preferable for this school not to be a user of IGE, since what the teachers and principals are trying to learn is the process of changing old practices.) During the two-week-long workshop, trainees work with children in the mornings, then spend the afternoons evaluating their progress and charting the next day's activities. At the end of this time, they plan the inservice program for the rest of their building staff.

The training process continues throughout the year, primarily through teacher-to-teacher interaction. Personnel from the intermediate agencies do some consulting, but /I/D/E/A/ feels that programs such as school staff exchanges can be more productive. In the staff exchanges, a few teachers from one school may spend as long as a week at another school observing the problems and solutions and discussing their own experiences. The principal is supposed to take an active role in the inservice program; for example, an /I/D/E/A/ publication suggests that when a problem arises in a school, the principal and the Facilitator can jointly plan a small inservice project to work toward a solution.

The staff training is individualized, in accordance with IGE principles. /I/D/E/A/ has listed 35 outcomes or objectives for the training, but school personnel determine their own way of progressing toward these objectives. The pace of implementation may be slow. At first IGE might be used in a portion of the school day, perhaps in one subject area, and by the end of the year half of the school might be using it in all subjects.

It can be seen that Wisconsin and /I/D/E/A/ are in fundamental agreement about the diffusion of IGE, despite their differences. Both plans emphasize implementation support, featuring staff training, which is coordinated by linking agencies. In fact, future directions for both agencies seem to be bringing their programs into closer alignment. /I/D/E/A/ personnel have begun to work with teacher training institutions to study the use of IGE in preservice settings. Meanwhile, in 1972-73 the Center's linkage system adopted some of the arrangements that /I/D/E/A/ has originated. For instance, the Center set up statewide leadership councils which included IGE coordinators from local districts, who would be able to give more help to the new multiunit schools than state department personnel alone could supply. And some state departments of education organized leagues of schools to monitor the schools' implementation and to gather feedback from them.

IMPLEMENTATION FIGURES

In 1973-74, there were 1,600 multiunit elementary schools in 34 states. Some have worked only with the R&D Center, some only with /I/D/E/A/, and a large number have had contact with both agencies. For example, the IGE coordinator in Wisconsin has participated in the two kinds of training programs, and he uses materials from both organizations in conducting inservice training for schools in the state. Thus it is not possible to separate the results of the two dissemination strategies.

In order to estimate the "market share" that has been attained by IGE, we can use the total number of public elementary schools in the 34 states. (It would not be fair to say that the market consists of all the elementary schools in the country, since implementation is based on contact with linking agents, and there are no agents in the other 16 states.) On this basis, there is a total market of about 56,000 elementary schools.[1] The 1,600 multiunit schools represent almost three percent of the market.

Does this figure represent successful diffusion? It seems inappropriate to use commercial publishers' market shares as a standard of comparison, since IGE is not in the same product class as instructional materials. It is not even a product at all; instead it is a change in the structure of a school. In the absence of a better standard of comparison, we can only point out that five percent would be a respectable market share for an instructional product, and that IGE's three percent therefore seems to qualify as successful.

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[1] Digest of Educational Statistics, 1972 Edition. U.S. Department of Health, Education, and Welfare. Table No. 10, p. 12.

DISCUSSION

Design

The development of this particular innovation does not represent a mismatch between objectives and form (as may have been the case with other innovations). The objectives are no more sweeping than the organizational change and the inservice training program that are designed to lead to their attainment. If the staff of a school are willing to work for the comprehensive set of outcomes from teacher cooperation to individualized instruction, it is likely that they will be willing to accept the substantial changes caused by adoption of IGE.

The complexity of the change to a multiunit plan seems to hold appeal for some adopters. A Center staff member explains that many educators have seen the instability of piecemeal innovation and therefore look for a way to build a comprehensive structure for change. According to the /I/D/E/A/ staff, one of the foremost advantages of IGE is the implementation process, in which teachers and administrators take part in clinical inservice training before the school year begins and the school joins a League of implementing schools in its area to exchange help and support.

However, the complexity of the change can obviously be a barrier to adoption. The shift to the multiunit organization is a disruptive process requiring a redefinition of roles at all levels of the school's staff. A staff member at the R&D Center says that teachers can feel threatened by the team approach, since they may worry about exposing their weaknesses to colleagues. And because the change is complex, it demands a sustained level of commitment. Unless staff members agree with the philosophy of IGE and are willing to work conscientiously for it, they will not implement it. Therefore the Center and /I/D/E/A/ have devised systems of checklists and formal agreements to preclude too-casual adoptions.

School people sometimes express a concern that parents in their district will oppose the multiunit plan. The developers at Wisconsin state that parents usually react enthusiastically when the change is made, but they are now working on a program for home-school-community communication that should help to counter school people's fears of negative community reaction.

Field Testing and Marketing

The field testing of IGE avoided some common pitfalls by virtue of the unusual nature of the innovation. It simply was not possible to bring a group of people together, give them a brief experience with the product, and assess the results. Instead the multiunit design was implemented in a number of Wisconsin schools over a period of at least a year. The reaction of potential users was gauged by the evidence that the innovation was being adopted by other schools. The adequacy of its operational procedures was, of course, a central issue in the field testing. All the relevant decision makers in a school were involved in field testing, since it was recognized that there would be many important users and facilitators.

One problem that we have identified did not appear to be resolved in the R&D Center's field testing: they worked with schools that were disposed to use the product. One might argue that given the test strategy of studying actual users, they could hardly have worked with anyone else. However, the need for the multiunit model was initially identified in cooperation with a select group of people from schools, and it was these people who formed the nucleus of the test users. Perhaps a needs assessment survey or a more intensive study of non-adopters would have yielded important information.

Diffusion Strategy

In light of our other case studies, it seems probable that one important reason for the success of IGE was a recognition of the innovation's complexity, which lead to careful planning for its diffusion. The R&D Center and /I/D/E/A/ may have been fortunate in having a product that was not a tidy package but obviously required a supporting structure of implementation assistance. Because of the complexity of the change they hoped to produce, they set up networks of intermediate agents to provide the necessary support. These people viewed IGE as a change process, not as a simple product to be passed on to schools.

Awareness Efforts

Although the bulk of dissemination funding has gone into implementation support, Wisconsin's 1971 awareness campaign deserves analysis. It illustrates the expense of such efforts and the apparently low payoff that must be expected. The initial mailing went to nearly 30,000 people; 800 cards (three percent) were returned, and about 500 people (two percent) attended the information-giving conferences. However, we do not assert that awareness campaigns are a waste of money. Even though few adoptions may result directly, a great many people are introduced to the existence of the product--and awareness is, after all, an indispensable condition for adoption. What seems important is: 1) that awareness efforts be targeted to the most appropriate audience, and 2) that the first exposure to the product be followed up with more information. Although Wisconsin staff members point out that this mailing was more successful than those of most commercial companies (who,they say, usually expect about a one percent return), it is possible that the use of market segmentation techniques would have yielded a more limited and efficient mailing list.

Opportunity for Trial

There has been no formal, nationwide program to set up IGE demonstration sites, although the demonstration approach seemed to produce good results in Wisconsin in 1968-69. On an informal basis, coordinators encourage potential adopters to visit successful multiunit schools. The follow-up for people who responded to the Center's initial mailing was an information-giving conference. If participants in a conference wanted a more

direct experience with the innovation, they could attend the first inservice workshop. The Center's report on the awareness conferences indicates that almost half of those who had not yet decided whether to adopt the multiunit model were considering attending a workshop; this finding suggests a need for a trial experience with the product.

Linking Agencies and Incentives

The different strategies of Wisconsin and /I/D/E/A/ raise an interesting question about incentives for linking agencies. Wisconsin spent roughly half a million dollars on subcontracts to state departments of education, while /I/D/E/A/ awarded no subcontracts. Instead, /I/D/E/A/'s linking agencies have used several different financial arrangements with the schools they have helped in implementing IGE: some regional service centers regularly charge a fee to schools in their area; some universities have made commitments to provide inservice training to nearby schools; in some cases tuition has been charged for the inservice work and participants earn graduate credit. These alternative arrangements suggest that Wisconsin's subcontracts might not have been necessary. Still, a good record of adoptions did seem to result from the subsidized state departments' involvement--and it should be noted that Center staff members have in the past been philosophically opposed to asking users to pay for implementation support, although other options are currently being considered.

Training

The cornerstone of IGE implementation is inservice training. Wisconsin has used the incentive of professional development to encourage experienced multiunit teachers to return to the university campus regularly and continue their inservice work. But in the view of the /I/D/E/A/ staff, the first year of implementation is the most critical time for training; they do not feel that the Wisconsin program of workshops in the implementation phase gives teachers enough grounding in IGE. In either case, though, more training accompanies this innovation than almost any other we have studied.

Problem Solving

Another important service for adopting schools is a system of problem-solving help. The networks of intermediate agencies provide people who know the difficulties of implementing IGE and can suggest ways of meeting these difficulties. At the same time, the fact that an adopting school is not abandoned when the product is purchased helps to sustain the interest of the staff. The continuing relationship with a state department or a league of schools seems to motivate the staff to direct their energy and creativity to implementation.

Monitoring

Quality assurance has been exercised, at least to some extent, by both agencies. A team from the R&D Center visited a sample of 20 percent of the multiunit schools in 1972 to determine how smoothly implementation was proceeding. /I/D/E/A/, in the course of developing and refining evaluation techniques, has measured the extent of IGE implementation in samples of up to 600 schools and has sent the resulting data back to the schools and facilitators.

Cost Effectiveness

In contrast to most other agencies, the R&D Center has kept careful records of the costs and outcomes of diffusion tactics and has used this information to alter its plan as necessary. Attention to costs, adoptions, and implementations was required under the terms of the 1971 diffusion grant.

The following breakdown summarizes the costs and results associated with each phase of the strategy over the two-year period.

Awareness. There was a separate grant from NCEC for this effort, which took place only in the first year. At a cost of $22,200, a total of 29,058 brochures were sent out. Of these, 801, or 2.8 percent, were returned. About 500 people attended the information-giving conferences. Hence the Center spent $58 per person attending a conference.

Implementation. Over two years, the subcontracts, staff salaries, travel expenses, and management costs totaled $660,340. The nine state departments of education that received subcontracts brought about a total of 630 adoptions. The cost was therefore $1,048 per adopting school.

Refinement. All costs related to this phase amounted to $235,840 for two years. The result was one-week training institutes on seven university campuses for 1,200 people, including 700 unit leaders, 300 principals, and 200 staff reading teachers. The per-person cost to the Center was $196.

Institutionalization. The fellowship program was financed with money from both funding years, although it was in effect for only one academic year. The cost was $243,000 to give fellowships for a year of graduate study to 38 people: 24 unit leaders, 9 principals, and 5 reading teachers. Each fellowship thus cost $7,448. The R&D staff became aware that the institutionalization phase was very expensive, and they have since devised a different way to build IGE into the preservice curriculum.

RESEARCH UTILIZING PROBLEM SOLVING (RUPS)

PRODUCT SUMMARY

Product name: Research Utilizing Problem Solving (RUPS)

Developer: Northwest Regional Educational Laboratory (NWREL), Portland Oregon

Distributor: Commercial-Educational Distributing Services

Description: Research Utilizing Problem Solving is a 33.5 hour instructional program designed to provide teachers and administrators with skills that will enable them to analyze situations, consider alternatives, and make decisions. The two versions that are available, for administrators and teachers, also include lessons to promote the growth of teamwork.

The Classroom Version of RUPS was released commercially in March 1971, the Administrators Version in July 1973. Each version consists of a leader's guide, participant materials, and an audiotape and text. Through a series of workshop activities, participants first learn to correctly identify a problem, then to diagnose the problem situation, to consider alternatives, to test plans, and finally to evaluate and update the plans.

Target market: Although elementary and secondary teachers and administrators are the primary target audience, the program has also been used with paraprofessionals, students, volunteers, and parents. Governmental agencies, business, and industry have also requested RUPS training. Target buyers are generally superintendents or members of a central district staff.

Cost: Participant materials for the Classroom Version cost $9.20, and for the Administrators Version, $13.10. Reusable leader's materials cost $12.00 for the Classroom Version and $12.20 for the Administrators Version. Materials are easily duplicated; the developers say they think this happens frequently, especially since most components of the package are not copyrighted.

Schools must supply the following materials, personnel, and funds to implement the course:

Tape recorder

Trainer, through one of the following:

-- Contract with regional training representative (consultant fee of $100-$150 per day for five days)

-- Contract with experienced participants (consultant fee)

-- Contract with developing agency
(consultant fee, overhead, travel expenses, per diem)

-- Local university or college
(summer workshop on campus or consultant contract)

-- Development of cadre of own teachers
(initial expense of training core group of trainers through any of above)

Substitutes (if course is conducted during school hours)

The only set cost per user is for participant materials, portions of which can be duplicated. Aside from this minimal amount, costs vary depending on whether substitutes are hired and on trainer costs. The least expensive method is to offer the course during the summer or after school, using district teachers as trainers.

Evaluation: The main field test of RUPS was conducted under conditions as similar as possible to those that were likely to exist when the product was released for distribution. Each site contacted the Laboratory, chose participants, and paid expenses. Seventy-six percent of all participants rated the workshops positively on three scales of worthwhileness, on the degree to which expectations were met, and on the extent to which they would recommend RUPS workshops to others. In a comprehension test administered at the conclusion of training, 87 percent of the communication concept items and 67 percent of the problem-solving concept items were correctly answered by more than 75 percent of the participants. The report concludes that " . . . the workshop was effective in helping trainees acquire problem-solving skills and concepts of communication relevant to effective teamwork."

The Laboratory conducted a six-month follow-up to study the use of training. The report points out that there is no predictive validity between post-training scores and use of training. In other words, those who acquired problem-solving skills during the course did not necessarily use those skills in the school setting. Better predictors of use seem to be team participation in the training and the match between the materials and group interests.

The field test did not attempt to document the quality of RUPS training in classrooms and its benefits to schools and students; future studies will attempt to assess these two factors.

Current status: All elements of the RUPS package have been developed; materials are available from a small printer, Commercial-Education Distributing Services. As of August 1972, 4,481 teachers and administrators had been trained in RUPS.

Innovative effects: RUPS training takes 33.5 hours to complete. If workshops are held during school hours, scheduling changes must occur. Although the program itself is inexpensive, teacher released time is costly and may cause changes in budgeting patterns, especially since staff training is an area for which little money is traditionally allocated. Developers stress that most graduates are qualified to offer training to others. Although administrators are generally more apt to retrain others, some teachers may also accept this role leading to some change in authority relationships. The main goal of the training, the development of problem-solving skills, may ultimately lead to extensive changes in a school system.

Synopsis of diffusion: With RUPS, the Northwest Laboratory has pioneered a method of do-it-yourself dissemination; the program is highly structured, with unusually complete directions for its use, and it is assumed that most trainees can become trainers themselves. In theory, this would lead to infinite diffusion of the program. And in reality, it has apparently led to good results.

Once a small cadre of personnel in a district has participated in RUPS training, the entire staff can be trained. To begin the process, the district can arrange for a consultant from the Laboratory or from a local college, or can contact one of the 18 regional training representatives. These representatives are responsible for most of the program's dissemination, although the Laboratory does conduct several different kinds of awareness efforts. The representatives are given a great deal of autonomy--in part because bringing them all together for a meeting would be quite expensive.

No large publisher would accept RUPS without also taking on control of the training and thereby raising costs to the user significantly.

THE PRODUCT

Twelve teachers listen intently as the RUPS trainer turns on a tape recorder: "The group this year just can't seem to get going. It isn't a matter of intelligence, they just don't seem to want to work. For some reason or other, they're dragging their heels all the way and I don't know how to lead them. I want to do something but I don't know where to begin. What can I do?"

The Northwest Regional Education Laboratory (NWREL) attempts to provide a process for arriving at alternative answers through a product they call Research Utilizing Problem Solving. Each version of the materials, one for teachers and another for administrators, consists of a leader's guide, participant materials, an audiotape, and text. In a series of workshop activities lasting 33.5 hours, teachers and administrators learn teamwork skills and problem-solving techniques--either to help a fictitious teacher, Mrs. Jones, solve her classroom problems, or to help a fictitious administrator promote sharing among teachers. The program introduces step-by-step procedures for identifying and solving specific problems. For example, in one lesson teachers aid Mrs. Jones in achieving her goal of helping children to become more active learners. During training sessions teachers, working in small groups, learn to gather and use data, develop alternatives for action, and plan for the introduction of change.

RUPS is more than a series of tricks to make teaching easier. The developers are attempting to equip teachers and administrators with skills to enable them to use the vast storehouse of research knowledge that a technological society provides. NWREL is also trying to teach participants how to apply a research process for analyzing their educational settings. Developers contend that this training in the effective use of research techniques will enable teachers and administrators to promote real changes in their schools.

The program evolved from strategies developed in Michigan during the 1960s while the current program director was working at the University of Michigan and with the Cooperative Project for Educational Development (COPED). During this period he and other COPED members studied the importance of the teacher or administrator as a change agent.

DEVELOPMENT

The RUPS project director, Dr. Charles Jung, saw the need for problem-solving training in the early 1960s while developing youth programs in Michigan. Even though evaluations showed that they were effective in helping alleviate problems such as delinquency and teenage pregnancy, the programs soon disappeared. Jung explains that while teachers and administrators had solved problems, they seemed to be unaware of the general process that they

had used; teachers didn't have the opportunity to reuse and absorb their new program-developing skills. Charles Jung continued consulting with teachers, but he went on thinking about the way teachers work toward improvements in education and wondering how to transcribe that process into a program with universal applicability. He was already aware of some problem-solving methods that worked; at the University of Michigan he had studied under Dr. Ronald Lippitt and other educators who had developed techniques for successful problem analysis and solution.

Gradually pieces of the puzzle began to come together; he recalls vividly the day he decided that problem-solving and team skills could be combined into a saleable product. Jung believes that "some aspects of problem solving take an expert but a lot don't," and estimates that 70 to 80 percent of this process can be taught to all teachers. He excitedly approached one of his colleagues with his ideas for a product that could be used by teachers to train other teachers in the processes of problem solving. The response came quickly, "Impossible." His colleague believed problem-solving processes were too complex to capture in product form and too difficult to convey in a short series of lessons, especially when they were to be taught by teachers who were novices in the field.

Undaunted, Dr. Jung continued assessing the possibilities for the product. In the late 1960s, he served on the executive committee of the Cooperative Project for Educational Development (COPED), which was funded by the U.S. Office of Education for three years. Working cooperatively with the National Training Laboratories, the group of leaders in knowledge dissemination initiated inservice training programs for university-based interns and for consultants of school systems and education associations. During the years he spent with this project, Charles Jung began working with the pieces of RUPS that had already been developed, and the COPED and National Training Laboratory personnel tested a prototype of RUPS on a team of teachers in Michigan. There were difficulties with the nine-day model; trainees working on their own programs became so involved with their particular problems that they lost sight of the overall process. The trainees themselves suggested that the course might be more effective if they all worked with a simulation rather than their own problems until they had a good idea of the process.

The system was modified to include a simulation and tested with the Association of Classroom Teachers during the summer of 1967, but further development was delayed; Charles Jung had come to the NWREL and was concerned about other projects during that year. During 1967 the Laboratory conducted an informal needs assessment in the northwestern region and decided that their clients would benefit from the development of a teacher-training program. Rather than concentrating on subject areas, the Laboratory chose to create a pre- and inservice training program to develop skills that would help teachers apply educational research and technology. RUPS became one element in what NWREL calls the "Improving Teaching Competencies Program." By the end of 1972 nine elements of the total program had been completed and nine more were under development; NWREL estimates that the

total Improving Teaching Competencies Program of 20 units will be available in 1976.

Field Testing

Because many elements of the RUPS program grew out of earlier experiments, it has a long history of informal field tests. A preliminary version containing some aspects of the program was field tested in collaboration with the National Board of Education of the Methodist Church. The product was further tested at three annual conventions of the American Association of Classroom Teachers and in public schools in Atascadero, California. NWREL, NEA, the Oregon Education Association, the Washington Educational Association, and Central Washington State College all participated in the final revision of two versions of the program.

In the final field tests, an attempt was made to set up a realistic appraisal of the product and its future dissemination strategy. Those educators who participated contacted the Laboratory because they had heard of RUPS training and were interested in taking the course. NWREL did not provide free materials or training; participants covered all costs. In addition, it was the sites rather than the Laboratory who selected the trainees. The Laboratory expected that these realistic circumstances would shed light on the commercial dissemination pattern they could expect for the product.

Field-test participants included teachers and administrators from Montana, California, Washington, Idaho, and Texas, as well as a group of educational researchers drawn from throughout the United States. Evaluation of the program was based on questionnaires and exercises completed by participants before training, immediately following training, and six months later. Three sets of questions dealt with the acceptability of the program. Seventy-six percent of all participants rated these attributes positively on three scales. Seventy-seven percent of the participants rated the training positively on four scales related to the content of training: "The extent to which it offered new insights, its relevance to 'real' issues, and its immediate applicability to practice and the extent to which it demanded original thinking." All groups except one gave the course high scores.

The data from California and Washington groups show the dramatically different results observed in different contexts. In California, teachers attended from several counties surrounding a metropolitan area. Prior to training, the teachers and administrators had been assigned to task forces to plan and carry out an innovation in several local schools. Although follow-up sessions, a part of RUPS training, were not held, the group met regularly for a few months to work on implementation of this innovation. The Washington group was composed of inservice Teacher Corps trainees who had recently completed an intensive two-week human relations class. The evaluation report notes, "The contrast between that experience (i.e., the human relations class) and the closely structured, tightly timed RUPS design

produced high cognitive dissonance and trainee resistance." In California, where the materials were adapted to the group interests, scores related to the acceptability of training met expectations; the group of Washington interns rated the program less favorably. For example, while 93 percent of the California group indicated that they would strongly recommend the training to others, only 29 percent of the interns so indicated. The evaluator concludes that "there was indeed a poor match between this training and the felt needs and concerns of the trainee group. . . (i.e., the Washington interns)."

Additional data indicate that in a questionnaire judging comprehension, "87 percent of the communication concept items and 67 percent of the problem-solving concept items were correctly answered by more than 75 percent of the participants." Tests of competence showed that "under a wide variety of field conditions, including high trainee resistance, the workshop was effective in helping trainees acquire problem-solving skills and concepts of communication relevant to effective teamwork."

However, an interesting finding of this study is that post-training scores bear no relation to use of training. That is, those who scored highest on the test do not tend to implement the program more frequently then those who scored lower. Instead, the extent of later implementation appears to be related to the circumstances of training. The overall conclusion of the field-test findings is that those "who participate in the RUPS training as team members are most likely to make use of what the training offers" and that:

> In planning for or deciding whether or not to provide RUPS training for any group, attention should be given to the experiences of potential participants just prior to the proposed RUPS workshop . . . . It is not recommended that this training follow an unstructured, T group type experience of any duration.

The field tests did not attempt to evaluate the extent of implementation of the process or the effect on schools and students; the Laboratory will explore these issues in future studies.

In early 1971, the Laboratory was ready to market RUPS; they had succeeded in developing an inexpensive, effective product that they hoped would be easy to disseminate.

DIFFUSION

Like RUPS itself, the main element of the diffusion strategy had grown out of Charles Jung's experiences in Michigan long before the final product was ready to be marketed. In a paper presented at COPED in 1967, Jung emphasized the importance of the trainer as a change agent. Today he says that a part of the plan for dissemination of RUPS was to distribute

the materials through a national network of regional trainers. However, it was recognized that one product alone would not provide sufficient incentive or income to support a formal network, and therefore until the product line had been expanded and the network formed, the Laboratory depended on an informal network of experienced participants in addition to other methods of dissemination.

As part of the dissemination strategy, participants are encouraged to train others in the RUPS process; once they have gone through the program, the developers contend, most participants are able to become trainers. Since most training is handled through the Laboratory, experienced participants, or the network of trainers, it is unnecessary for the Laboratory to disseminate its materials through a large publisher. Instead, materials are printed and distributed by a local printer.

The Laboratory and the Printer

At first, Laboratory staff were intrigued with the possibility of linking up with one of the major publishing houses in the nation and thereby gaining prestige and the stability of long-term product availability. However, most large publishers were not interested in distributing materials that had to be tied to training. The only large house which was interested in publishing the product wanted to have exclusive control over all training experiences, and developers felt that the publisher would be operating the training at an exorbitant price. From the beginning the developers had attempted to create an easily diffusable product, so the Laboratory declined the offer, since it would have negated the objective of diffusion at a reasonable price.

Since a large, prestigious publisher could not be found under conditions acceptable to the Laboratory, the Laboratory located a small printer, Copy-Print Centers. The printer did not have sufficient capital to supply a steady inventory of the materials, and so the Laboratory supported the printing by purchasing the inventory. Proceeds from the sale of the materials were then available for the printing of additional materials. In November 1972, the Laboratory decided to terminate the arrangement and transfer the materials to a newly formed company that was more financially self-sufficient. The Laboratory had by this time located a printer, Commercial-Educational Distributing Services, that was willing to handle printing and distribution of RUPS even though the materials had not been copyrighted. Under a November 1972 contractual agreement, the company prints materials, receives orders, ships, warehouses components, reports sales, and pays use and commission fees.

Both the director of dissemination at the Laboratory and the president of the printing company view their arrangement as a satisfactory one. The director notes that the service has been excellent. "They work very hard to meet our needs, to make sure we're satisfied," he says. He likes having the house in the same city. "We can get together and carefully nurture the relationship to assure availability of the product," he explains.

Although the publisher is entitled to advertise, promote, and sell the materials, the Laboratory and the network accept major responsibility for marketing the product.

The Network of Regional Training Representatives

The national network of 18 regional training representatives was developed to assist in the dissemination of RUPS and other teacher competency programs. A contract between each representative and the publisher stipulates that the publisher will pay a commission on sales. Although the Laboratory coordinates the network, provides referrals to the representatives, and advertises their availability, the network members are neither Laboratory employees nor consultants. The regional representatives were selected because they already had linkages with the state departments, colleges, and school districts in their area and because they had an understanding of the goals of the total program.

Network representatives were not given specific training in dissemination but were encouraged to use whatever strategies they thought were most feasible for meeting the demands of clients in their region. They were trained by the Laboratory in the systems each offers. Each has now trained from 10 to 35 others who assist with training in the geographical area.

Trainers from the network are generally paid, under contract with the client, a consultant fee of $100 to $150 a day. They receive a commission from the publisher of $1.00 for each instructional packet sold. The Laboratory itself does not pay the trainers.

Laboratory staff members also serve as trainers. In addition to the consultant fee, the client is required to pay travel expenses, Laboratory overhead, and per diem.

The printer views the network as a reasonable alternative to a sales force. Salesmen, he contends, would not be able to make a living from this group of products. But he sees motivation as a problem. "The representatives have got to start acting like salesmen rather then professors," he says. He thinks that this may change as more of the representatives are trained in the Laboratory's various teacher-training systems.

Laboratory staff members see the regional network of trainers as an effective component of their dissemination strategy. They note that salesmen for a large publisher could probably do as good a job if they had the same background and training as the regional training representatives, but their assumption is that few do. The developer says that understanding of the system comes from, "a pretty good understanding of behavorial sciences, learning dynamics, organizational development, and human growth and development." He explains:

> A salesman who goes out just to make money from the distribution of a product will have a much different approach to a customer than an educator who wants to make sure that the

person understands what he is buying, and what the product will and will not do. Our representatives may advise a client that they need a product other than RUPS. I don't think that a salesman whose main product was RUPS would do that; we are interested in long-term change in education and not how much money can be made by it.

Laboratory Dissemination Efforts

The Laboratory's effort can be divided into two categories: the print mode and personal contact. Traditionally, more emphasis and resources have gone into mailings and advertising than into face-to-face contact.

The Laboratory has developed different printed materials for different audiences. The materials range from a simple fact sheet containing one paragraph on RUPS, to more detailed announcement brochures and product summaries, to news releases, to a technical report. Emphasizing that the Laboratory does not depend on one technique, nor on one generalized message in its awareness effort, the director of dissemination explains that when contacting colleges and universities, for example, the Laboratory leans heavily on data and uses a personalized letter above the executive director's signature.

The printer attributes the successful marketing of RUPS to the Laboratory's large number of specialized mailing lists. For example, Laboratory membership is composed of 826 institutions including school districts, professional associations, colleges and universities, and other agencies. The Laboratory also uses a mailing list from a state system of higher education which includes names of deans and curriculum professors at selected colleges and universities throughout the nation. Selected commercially available lists are also used. Agency computers store the mailing list of Council on Educational Development and Research (CEDaR). Mailings such as the announcement of summer workshops are sent to nearly 8,000 colleges, universities, and school districts.

RUPS has also been publicized in the CEDaR D&R Reports. According to figures compiled by the Laboratory, 450 RUPS brochures were sent out between May 1972 and June 1973 in response to CEDaR request cards returned to the Laboratory. The only costs, aside from mailing, were membership fees in CEDaR.

Advertising in an educational journal was viewed as rather expensive by the Laboratory; one ad in Grade Teacher cost $650 and elicited 759 requests for further information on RUPS. Because Laboratory staff did not view this effort as cost effective, magazine advertising has been discontinued.

Because educational innovations are so often difficult to implement, the director of dissemination feels that they are not presented best in print. "You need an opportunity for the educator to probe, to question, to wonder, and to interact with you," he says. He contends that because of the heavy work load of educators, the print mode, although relatively easy for disseminators, is probably less effective than person-to-person contact and multi media presentations.

The Laboratory is involved in a number of personal contact awareness efforts. As part of the consortium, a cooperative effort among four research and development agencies, staff members attend national professional conventions and meetings. By cooperating, the director of dissemination says, the agencies can save money while adding to their professional visibility and showing that they can work together. Although he is uncomfortable with the cost effectiveness of the consortium notion ("If we look at how many sales resulted from attendance at these meetings, the record is dismal"), he points out that it is difficult to measure the good will and the credibility that result. "I am not ready to say that what we did as a consortium in going to national conventions was a waste of resources," he emphasizes.

The director says that the best way to acquaint potential users with a new product is to get them involved with a piece of the product. He notes that in this way they not only get an understanding of what the product can do, but also feel more comfortable as a consequence. "We have found that the most successful experiences come when we can sit down for half a day, for instance, and talk about and explore the possible solutions for the unique concerns and needs of a group," he explains.

Recently, Laboratory staff gave a presentation to supervisors and trustees at the request of a state board of education. The dissemination staff also helped organize a conference for a state association of classroom teachers. A new organization with little experience in conference planning, this association asked a Laboratory staff member to attend meetings and assist with the convention management. The Laboratory trained 15 members of the organization to act as facilitators for a problem-solving presentation. While it is difficult to trace the effectiveness of this effort, one possible indication of success is that the Laboratory has been asked to assist with preparations for the second year. Such presentations, in the director's view, enable the Laboratory to reach a regional audience; through this contact, the Laboratory gains credibility and respect as a valuable source of information and assistance.

Field-test sites, part of the total dissemination strategy, are carefully selected to provide demonstrations and involve a new geographical area or group in the Laboratory's teacher competencies program. Before field testing some of the later products in the series, teachers must participate in a prerequisite RUPS workshop; field testing thus publicizes and earlier product.

SALES FIGURES

The director of dissemination says he feels that RUPS has a respectable sales record, but adds that it's too early to measure its effectiveness. "The strategy is not for short-term, spotty effectiveness; it calls for long-term institutional changes," he emphasizes. Noting that there are ways other than sales to measure success, the director points to increased use of RUPS by many groups outside the educational community. Too, RUPS has been translated into German and Portuguese; a Mexican-American version has also been produced. No sales figures are available for these adaptations and translations.

According to the Laboratory's latest information 1,113 leader's manuals and 4,049 participant packets had been sold commercially between March 1971 and late-1973. Records indicate that 4,481 teachers and administrators were trained between 1969 and August 1972. (It should be pointed out that reporting methods necessitated comparison of sales figures through late 1973 to training figures through August 1972.) The number of people trained represents less than one percent of all teachers and administrators in the United States in 1972.

Because materials are so readily duplicated, developers contend that sales figures do not accurately reflect use of the product. Since the whole package has some components that have not been copyrighted, teachers can reproduce materials with a relatively free conscience. Therefore, sales figures for participant materials may not reflect the actual number of trainees.

Another factor which makes detailed evalualtion difficult is that those who have participated in RUPS training may become trainers themselves. Whereas records are kept of those who participate in training at selected colleges, universities, and school districts, and those who are trained by a national representative, the Laboratory keeps no roster of people who take the course through other avenues.

The Laboratory's dissemination effort relies heavily on the multiplier effect, that is, on an experienced participant training others. Since the Laboratory has no records of the effectiveness of the multiplier effect, our staff attempted to informally assess its success. (It should be emphasized here that our figures do not represent a statistically valid sample; they are only an attempt to estimate the number of RUPS trainees since official documentation is unavailable.)

If the multiplier effect were extremely active, it would serve as a very effective means of dissemination. If half of the 4,481 participants had trained 12 people, and if half of these trainees trained 12 more, the materials would have reached more than seven percent of the total audience of U.S. teachers and administrators. However, a number of factors may mitigate against a "chain letter" system of dissemination. One may question whether teachers who have completed a workshop feel capable or have the time to offer the training themselves. Another factor is whether trainers encourage participants to conduct training. Staff members from this project contacted graduates of two classes in order to elicit some responses to

these questions and to assess the impact of the multiplier effect.

In August of 1972, twelve trainees participated in RUPS training under auspices of an association of school administrators. All participants were in top-level administrative positions and were obligated, as a condition of training, to teach RUPS to others once they had completed the course. Four of the seven trainees contacted had trained a total of 125 additional participants; of the other three, one had organized workshops that other trainers had taught, one had taught parts of the course, and one felt that the course "hindered creative thinking" and chose not to offer workshops. A retraining rate of over 50 percent is certainly impressive and if true for other groups would indicate that RUPS had indeed captured a large share of the market.

Our staff also contacted 13 of the 14 graduates of a 1973 RUPS summer workshop held at a state university. Participants included administrators, teachers, and students. None of the 13 had offered the training to others; one university teaching assistant said that he might offer the training in the spring. Most respondents said that they did not feel qualified to offer RUPS and that they had not been encouraged to do so.

Most teachers, at least in the group contacted, are reluctant to offer training since they feel that they do not have the necessary skills or commitment to training. This limited sample suggests that administrators who are more used to offering workshops and who, in addition, are required to offer training as a condition of participation might be more likely to train others.

If we combine the figures from the two workshops, four out of 20 participants, or 20 percent, have offered training. Each trainer in the first group surveyed trained an average of 31 people during the 16-month period from August 1972 to December 1973. The Laboratory reports that 4,481 teachers and administrators were trained between 1969 and July 1972. Since the materials were commercially available only after March 1971, most of the teachers and administrators were trained between March 1971 and July 1972, also a 16-month period. Let us assume that 20 percent of the 4,481 participants trained up to July 1972 trained 31 people. We will also assume that there was enough time for another 20 percent of "second-round" trainees to train 15 people each. If this were true, a total of 115,582 people, or four percent of all teachers and administrators in the United States in 1972, would have been trained. Since the individual shares of instructional materials' sales for the 10 leading firms range from 3.5 percent to 7.4 percent, RUPS seems to have a respectable training record.

DISCUSSION

The Product

Disseminators have discovered that users are attracted to RUPS because it is one way of acquiring needed skills in a relatively quick and inexpensive manner when compared to many other teacher training programs. Because explicit instructions are supposed to make it possible for most graduates

of RUPS to replicate training, school district administrators can train a few master teachers who train others, rather than hiring an expensive consultant to work with all teachers in the district. If the program is presented in summer workshops using district teachers or administrators as trainers, the only costs are for the participant materials.

As evaluative studies tentatively indicate, we found that those participants who had gone through training with co-workers were most enthusiastic about RUPS. Many graduates emphasized that the training had given them new insights for dealing with people. Most trainees whom our staff contacted were more enthusiastic about the team-work skills than problem solving. Some even said that other problem-solving models are better and less complex.

Many elements of this package were familiar to the educational community before the course was disseminated commercially. Workshops conducted by the first researchers and developers of the system introduced participants to many elements that were later incorporated into RUPS. The disseminators say that educators who are familiar with one component are inclined to accept the total package because they know that one element is successful.

Not everyone is intensely enthusiastic about RUPS. During spring 1972, the Laboratory distributed a brochure to advertise local workshops. Nine of the 12 summer extension programs scheduled at colleges and universities were not held because not enough people signed up for the courses. One university employee said that she thought people were not interested in the course because they doubted that it would teach them anything new. Struggling for an explanation of the low number of inquiries about RUPS, an instructor at another college says that perhaps the name is formidable; "research" alone, he notes, may be enough to discourage some people. He adds that when teachers take time to read the description or talk to people about the program, they are more apt to be interested. One disseminator notes that the materials are not "intrinsically exciting."

The Laboratory dissemination director says that some potential users, especially at colleges and universities, object to the tight structure of the program. Some administrators with whom we talk said that the training was too long and too highly organized. One remarked, "The program is too formalized; it hinders creative thinking." Most teachers, on the other hand, said that they liked the structure. One said, "I'm an organized person, I like a structured program." Another noted, "I tend to answer questions intuitively; this program helps me organize my thinking so that I can explain my view of the problem to others."

Unlike the developers, some administrators feel that the package is costly in relation to what it will accomplish. Prospective buyers do not generally consider the materials themselves particularly expensive, but some view consultant fees and use of substitute teachers as costly. (This opposition can be overcome by offering the course through a university summer school program.) Others find scheduling a problem; adjustments can be made, but it is best, the developers say, if it is offered on five

consecutive days with provision made for the two follow-up sessions which can be conducted without the trainer.

Testing

The testing of RUPS differed from that of many other projects covered in this series of reports. Since RUPS was developed over a long time span, many of the ideas were informally tested as the system developed. In the formal field tests the Laboratory attempted to avoid an idealized situation where they could choose an audience. Participants contacted the Laboratory and covered the expenses for materials and training. This situation permitted a more realistic appraisal of how the materials would fare in the commercial marketplace than the developers could have attained if they had handpicked the participants and offered free materials.

Dissemination

In keeping with the project's philosophy of offering inexpensive training, the developers chose not to disseminate their product through a large, commercial publisher. The Laboratory staff members point to arrangements with the printer and with the representatives as positive factors in the dissemination of RUPS. The director of dissemination says that the package design was better handled by a printer rather than a large publisher. The arrangement has been a satisfactory one, but he cautions others that one runs the risk of a small house experiencing insufficient financial resources or being unable to respond quickly to unanticipated large orders. He suggests that a thorough financial analysis of any company be conducted before a contract is signed.

Opinion at the Laboratory holds that members of the network of representatives are more able than commercial salesmen to recognize the realities and problems of teacher training, yet the system has its problems, too. A representative and a Laboratory staff member both mentioned that there was little opportunity for all the representatives to meet and discuss strategies, problems, and successful methods. Calling all the representatives together for one five-day training session would cost approximately $19,000. The printer feels that training is the Laboratory's responsibility; the Laboratory staff say they do not have the resources for such a session, and they hope to share training costs with the printers of RUPS and of other teacher training products. The Laboratory's involvement in the training experience seems quite important to the network. A developer points out that the network probably could not sustain itself in most states without Laboratory assistance. One of the representatives mentions that he relies to a great extent on the Laboratory dissemination strategies and training in the systems.

After the initial training experience, RUPS dissemination depends heavily on the multiplier effect. The Laboratory therefore loses a great deal of control over the way the materials are being used. One group of trainers we contacted said they had completed a revision of the materials

and will no longer offer the 30-hour course. The reluctance of many trainees to conduct training has been discussed above.

R & D and Sales

One regional representative notes that an important selling point is that the training is based on educational research. However, none of the graduates contacted by our staff had seen evaluation data before taking the course. One, who learned of the evaluations after he had completed training, was critical of the research because there was no attempt to evaluate the program's influence on children.

Cost Effectiveness

During the development of the product the Laboratory accumulated its costs as prescribed in its contract with USOE. The accounting prescribed did not provide for the determination of costs for each of the products being developed under the contract. Therefore, developmental costs cannot be determined for the RUPS system.

The director of dissemination estimates that 30 percent of dissemination money has been used for personal contact, while the majority, 70 percent, has been used for other means of dissemination, mostly for printed and sample materials. He thinks that this proportion is gradually changing, as it becomes more apparent that face-to-face contact is necessary for selling educational innovations.

The 30-70 percent ratio does not reflect training expenses, since trainers are paid directly by the client and through commissions from the printer. The regional network is viewed as cost effective by Laboratory staff members.

Implementation

Without a trainer, developers contend, implementation of RUPS is impossible. In order to help speed dissemination and implementation, the developers have set up a national network of representatives. Through the multiplier effect they expect that many participants will train others and will become change agents in their schools.

Few incentives for continued implementation seem to be provided by the developer. Late in the development cycle, RUPS added two "back-home" workshops to the package. These workshops, if held, would help users with problems they may have had in implementing the innovation and would provide a stimulus for continued use, at least for a 12-week period. No participant whom we contacted had attended a follow-up workshop.

PARENT/CHILD TOY-LENDING LIBRARY

PRODUCT SUMMARY

Product name: Parent/Child Toy-Lending Library

Developer: Far West Laboratory for Educational Research and Development, San Francisco, California

Distributor: Materials distributed by General Learning Corporation, Morristown, New Jersey. Training for teachers/librarians available through consultants trained by the developer.

Description: The Toy-Lending Library is a training program for parents of three-and four-year olds. It attempts to encourage parents to help their children learn through enjoyable, shared experiences, so that the parents will feel more self-confident as educators, participate more actively in their children's education, and respect their children's abilities. Through the program, their children learn concepts and problem-solving and communication skills.

Parents meet for two hours each week during the eight-week course. At each meeting a new toy is introduced and the parents find out, through filmstrips, cassettes, demonstration, and role playing, how their children can learn from the toy. There are eight basic toys for use during the course and eight "loaner" toys for later use. Parents borrow these toys and also other toys, children's books, games, and records, as one borrows books from a library.

A teacher/librarian goes through three days of training in the principles and methods of the program and receives a Librarian Manual. Other materials are toys, eight filmstrips and cassettes that accompany them, two parent manuals, and a 20-minute color film.

Target market: Although target users are parents and their three- and four-year-old children, the target buyers are organizations. Schools, daycare centers, public libraries, churches, industrial firms, and unions are among the potential purchasers.

Cost: The breakdown of the basic cost is:

*Set of 8 basic toys	$ 75.00
Set of 8 filmstrips and cassettes	100.00
Librarian Manual	2.10
*Parent Guide #1	1.25
*Parent Guide #2	1.25
Film	200.00
Set of loaner toys	75.00

*One of these items should be provided for each parent.

Thus, the start-up cost for a group of 20 parents is $1,852.00, or $93 per parent, not including the librarian's salary. The developers

estimate a first-year total cost of about $100 per parent, based on a librarian's salary of $5,000 for the academic year (doing four hours of teaching each week), and assuming that 120 parents can be reached in an academic year (with two parallel classes of 20 parents each in three eight-week periods).

Evaluation: Three cycles of formative evaluation were conducted at five sites. Evaluation covered children's interest in the toys, children's achievement, the course and its power to attract participants, and continued use of the library. The toys were evaluated by parent reports on the number of times children had shown interest in them; the toys in which 20 percent of the children lost interest were rejected or revised. Parents' self-reporting provided the information on the course; responses to open-ended questions about the experience were examined for congruence with the developers' objectives, and it was found that in the various subgroups between 53 and 100 percent of responses were related to objectives. Children's achievement was evaluated by pre- and posttesting of experimental groups; gains were significant on most subtests covering the concepts that were related to the program. Attendance at the course meetings did not fall off over time, and between one-third and one-half of parents continued using the library after the course ended.

Evaluation of the training for teacher/librarians consisted of interviews with three groups of trainees six to 10 months after their training. It showed that 87 percent approved of the materials, 91 percent approved of the five-day training, and 99 percent of simple content questions were answered correctly.

Current status: Materials are available from the distributor; arrangements for training can be made through the developer.

Innovative effects: The Toy-Lending Library program changes the relationship of parents to their children's learning. Developers intend that parents will gain respect for their children's learning potential while fostering children's growth in concepts and skills. More importantly, developers hope to encourage parents to take an active part in the education of their children. Since this is a preschool program, it does not directly change school practices, but developers contend that parents who are aware of how their children learn may play an important role in changing schools.

Synopsis of diffusion: This program seems to have considerable intrinsic appeal; professionals in the early childhood field and parents who heard of it through the mass media reacted with enthusiasm to its ideas. But installation of the program is a complex matter, requiring money and organization. The complexity of implementation also results from the fact that two agencies handle the program; a commercial distributor manufactures and markets the toys and other materials, while the developer has set up mechanisms for providing training.

To reach adopters outside the customary channels of educational marketing is a difficult objective, and it is noteworthy that much of the diffusion effort has in fact been directed to schools. The Laboratory tried

to involve state departments of education as linking agencies by presenting orientation workshops and providing materials that could be used for further awareness efforts in each state. Demonstration sites were helped to set up functioning Toy Libraries. Both of these efforts were rather ambitious, involving 25 state agencies and 14 demonstrations. In retrospect, staff members think that more concerted programs with fewer linking agencies might have been more productive.

Two tactics were used to help adopters overcome their implementation problems. A paperbound book attempted to anticipate the problems--such as finding funds--and to suggest ways of solving them. Consultants were trained to give training to prospective librarians and to assist in implementation.

THE PRODUCT

The Parent/Child Toy-Lending Library was designed to help parents participate in their children's learning; the program shows parents of three- and four-year-old children how toys and games can be used for learning episodes, and it allows them to borrow toys as one borrows books from a library. In essence, the developers intended to create a system to change parents' attitudes about their children's learning potential and about their own competency. The developers see this product as a parent training program and offer an eight-week course, which usually meets once a week for about two hours. Without this parent training, the product degenerates into a package of toys, none of which is unique in itself.

At each weekly meeting, a new toy is introduced with a filmstrip and cassette that explain how to build learning episodes around the toy. Through demonstrations and role playing, the parents become familiar with ways of using the toy. Each session concludes with a discussion on some topic of general interest to parents, then the new toys are taken home for a week. After the course ends, parents are encouraged to use the library as a permanent source of new toys, games, books, and records.

The program's goal is to help parents promote the intellectual development of children in a way that is likely to support the development of a healthy self-concept. Objectives include:

1. Parents will feel that they are more competent in helping their children learn some important skills and concepts.

2. Parents will feel that they can influence the decisions that affect the education of their children.

3. Parents will feel that the child is capable of learning and can be successful.

4. The child increases his competency as a result of the interaction with the parents.[1]

The program is designed to foster children's growth in concepts and skills such as colors, shapes, problem solving, and verbal communication.

[1] A Guide to Securing and Installing the Parent/Child Toy-Lending Library. Far West Laboratory for Educational Research and Development, Berkeley, California, 1972, C5.

The developers' goals for the Toy Library reflect the long-range objectives of the Far West Laboratory's Responsive Program, an educational system being developed for children aged three to nine. These objectives are "to help children develop a healthy self-concept as it relates to learning in the school and the home, and to develop their intellectual ability."[2] A diversity of educational experiences is sought by the Responsive Program, which rests on the assumptions that much learning takes place in the home, that many alternative arrangements must be made for scheduling formal education, and that the educational program must be closely tied to the child's culture and background. The responsive environment leaves a great deal of autonomy to the child: adult-initiated talk should take second place to child-initiated talk, and the child can choose not to participate in group activities (as long as he does not disturb the group). His activities should be autotelic, that is, they should not depend upon extrinsic rewards or punishments, and they should help him develop useful skills, concepts, or attitudes.

The Toy Library was conceptualized as a way to help parents create a responsive environment for learning in the home. Its principles are those of the Responsive Program as a whole:

> Free exploration: The child is free to explore any toy and to change the rules of any game he may be playing with his parent.
>
> Self-pacing: The child is free to work at his chosen speed and to stop work when the game or toy no longer interests him.
>
> Self-correction: The toys are so constructed that the child can immediately find out the results of his explorations, either from the toy itself or from the parent.
>
> Discovery learning: The child is given time to discover things for himself--the parent helps the child to think through a problem rather than giving him the correct answer.
>
> Self-reward: The learning activities are satisfying to the child, and he does not play the game because the parent will reward him, or punish him for not playing. The child learns because he wants to.

The principal developer of the Responsive Program saw the Toy Library as a way of enhancing parents' involvement with their children's education. One staff member states that the developer:

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[2] A Guide to Securing and Installing the Parent/Child Toy-Lending Library. Far West Laboratory for Educational Research and Development, Berkeley, California, 1972, B3.

> . . .was probably one of the first to come out with the notion that parents are teachers too, and that parents could do some of the same things in their homes that were being done in the Headstart, day-care, and private nursery schools. The program was to pull together some positive interaction between parent and child. This is not to say that parents are not positively interacting with their children already, but that they could be trained to do some skill development and concept development, and in so doing, know more about the child's educational ability and the way he learns and his whole mode of interacting.

As parents learned to be more active participants in their children's learning, it was thought that they would assert themselves more strongly in school decision making. The developer points out, "We hoped that one of the functions that the training would serve would be to give the parent more control over the educational system--how to make it more responsive to their needs--especially the minority parent."

The program was designed to fill a need for families above the Headstart income level but not affluent enough to afford nursery school tuition. The developers estimated that three-fifths of the parents in the country fit this description. But, because of the training component, one family cannot act alone to purchase "the product." However, any one of a variety of organizations can set up a Toy Library, which requires a course leader, a room for the weekly sessions, some audiovisual equipment, and storage space. Schools, daycare centers, public libraries, churches, industries, and unions are among the target buyers. If no already-organizaed group in a community wants to take on the program, a group of parents can incorporate as a nonprofit association and begin to operate a Toy Library.

To establish a library, an agency must: 1) select a meeting place; 2) select a course leader; 3) find interested parents; 4) purchase the materials; and 5) obtain training for the Toy Librarian. The meeting place can be in a school building, a vacant store, a daycare center, a mobile van--as long as the space is available every week and there is room for storage. The course leader should be a community member with whom parents will feel comfortable. This person participates in a three-day training session designed to familiarize him or her with the concepts behind the program, the use of the toys, ways of communicating with parents, and the procedures for managing the course and the library.

A Laboratory staff member explains that the librarian's interpersonal skills are crucial to the program's success. "You can't just send a letter out and expect to bring parents in," he says; "you have to make individual contact with parents and generate a nucleus group, that then becomes the disseminator. We discouraged teachers from becoming librarians because teacher types tend to teach, and this was not the purpose. We encouraged

paraprofessionals, local community people, and parents to become librarians."

The Toy Library program is meant to supplement the customary procedures for early childhood education. It establishes new roles for parents (the users), for organizations (the purchasers), and for the course leaders (the facilitators). Furthermore, the developers contend that the physical product--the toys and other materials--is meaningless without the training program, which requires planning and money to set up. Clearly, this is a complex product.

DEVELOPMENT

During the three-year period of development, from 1969 to 1972, the Toy Library seems to have undergone little fundamental change. (However, because of marketing difficulties and his own changing ideas, the developer later designed a new version, including a core set of individually packaged toys and instructions for parents and their three- to nine-year-old children.) During field testing some aspects of the program were modified, but its essential aims and methods, which grew out of the Laboratory's conception of a total system for responsive early childhood education, remained intact.

Because it is one of the basic assumptions of the Responsive Program that the family plays a primary role in education, the developers set out to devise a way of helping parents to be teachers. "There was no research evidence to indicate that kids need a classroom setting," a staff member explains, "but they did need the early learning experience." The target users were the estimated three-fifths of parents with incomes between the Headstart and nursery school levels. No initial marketing studies were conducted because the developers perceived their product to be unique and thus felt there would be no meaningful baseline data.

Design of the program began with the premise that it should be inexpensive, requiring neither professional operators nor extensive space.

Over the three years of development, which was funded by the Carnegie Corporation with about $500,000, there were three cycles of field testing. The preliminary tests were carried out in two Northern California communities, Berkeley and East Palo Alto; the main field testing was done in two Utah school districts; the last stage was an operational test in Oakland, California. Program evaluation had five areas of focus: children's interest in the toys, the course itself, children's achievement, the pulling power of the course, and continued use of the library.

The toys were evaluated by means of parent reporting: each parent counted the number of times the child played with each toy, after being asked if he wanted to and when he was not asked, and the parent reported instances when the child lost interest in the toy before the end of the week or before he could play without mistakes. The toys in which at least 20 percent of the children lost interest were rejected or revised. Of nine original toys, four were accepted, three revised and retained, and two rejected.

To gather data on the course, the evaluators decided to use parents' self-reporting because they could not devise an unobtrusive, nondistorting way to observe parent/child interactions. A set of open-ended questions invited general responses to the program, which were then examined for their congruence with the course objectives. Of 165 responses, 15 percent were classified as unrelated to the objectives, nine percent dealt with the toys and were classified as unrelated, and 75 percent were classified as related. Most related responses (53 percent) expressed a feeling that parents could help their children learn; 37 percent indicated a feeling that the children were capable or could be successful; 10 percent were too general to classify. No responses indicated a feeling that parents could affect educational decision making.

Although the developers do not claim that within eight weeks there can be great changes in children's abilities or self-concept, they did test for cognitive gains. Children's achievement was measured by pre- and posttesting of experimental groups with 13 subtests, 11 of them related to the concepts to be learned with toys from the program. Of the 11 relevant subtests, the children made significant gains on nine and showed no significant change on two (on which pretest scores had been high). There were no significant changes on the irrelevant subtests.

The pulling power of the course exceeded the objective that 50 percent of enrolled parents should complete it: almost none dropped out. Continued use of the library was observed for between one-third and one-half of parents over a period of a year.

Evaluation was also conducted on the training provided for teacher/librarians. Trainees were interviewed six to ten months after completing the workshop and were asked for their perceptions of its usefulness. Eighty-seven percent approved of the materials, and 91 percent approved of the training. Simple content questions included in this interview elicited a 99 percent rate of correct responses.

DIFFUSION

After development had been completed, the Laboratory was confronted with the problem of disseminating a program that tries to reach a new educational territory--the home. A producer/distributor was found for the toys and other materials, but the heart of the program, the parent training, could not be packaged and sold so readily. A federal grant supported a three-pronged effort to bring about implementations: state departments of education were supposed to foster awareness of the program; demonstration sites would provide visible evidence of its methods and success; a network of trained consultants would be available to help set up Toy Libraries all over the country. This strategy was carried out, but the resulting diffusion of the program has not lived up to the Laboratory's hopes.

Because of the developer's reputation in the early childhood education field, a groundswell of professional interest in the Toy Library began during its development. The ideas behind the program gained exposure through professional journals and conferences, and the Responsive Model was chosen by the Office of Child Development as one of the "planned variations" for Follow Through programs. Informally the Toy Library became known through the communication channels of Headstart and Follow Through.

Ironically, one of the first diffusion problems stemmed from too much media publicity too soon: an unsolicited New York Times article appeared on March 30, 1970, and several journal and local news stories were picked up from this piece, but it was not until well into 1972 that interested people could purchase any part of the Toy Library.

In April, 1970, the Laboratory issued a Request for Proposals for producing and distributing the toys and course materials, but no firms responded. Eventually, General Learning Corporation (GLC) was persuaded to submit a bid, largely because of the company's previous experience in working with the developer. Through a contract signed in June, 1971, GLC agreed to produce the toys, printed manuals, and audiovisual materials. In the negotiations, GLC staff had asked if the Laboratory had done any marketing studies on the Toy Library. A Laboratory staff member recalls, "That question was always an underlying factor in the skepticism that GLC had ... They were bothered that only limited advertising had been done through professional journals, field tests, conventions, etc." No hard marketing research had been conducted to show what type of market existed.

Because GLC deals with the early childhood field, the developers assumed that this company could reach the target audience for the product. However, the company's usual channel of distribution is sales visits to schools; it could not locate the large preschool market that the developers had hoped to tap. Displays that GLC set up at conferences on early childhood education may have stimulated some interest, but even so, they were not seen by many of the diverse kinds of potential purchasers, ranging from churches to labor unions. The production of the toys themselves caused problems, too: it was expensive to make them in small runs, yet the company was unwilling to invest in a large production effort because its staff was unconvinced of the product's marketability. The dissemination strategies of the Laboratory and GLC have had fundamentally different objectives; while the developer wishes to ensure that adopters receive personalized training, the distributor needs to reach the most profitable market. Hence, the toys are sold directly to users through a catalog; the manuals are packaged separately and often are not requested by the people who purchase the toys.

To try to fulfill the original expectations for broad-scale adoption of the Toy Library, the Laboratory sought funding from the National Center for Educational Communications (NCEC). A $218,000 grant, received in spring, 1972, supported a program of diffusion activities with three major components. The strategy was built upon diffusion theory, which

points to a sequence of awareness, interest, trial, and adoption on the part of users. The Laboratory would bring about awareness of and interest in the Toy Library through the mass media and by enlisting the help of state departments of education, whose personnel would mount "secondary diffusion efforts" in their states. Once awareness and interest had been aroused, prospective users could gain understanding of the program by observing its successful operation at one of several demonstration sites. Then adoption would be facilitated by the existence of a network of consultants able to help set up Toy Libraries.

In an attempt to ease implementation, the Laboratory has put together a paperbound book, A Guide to Securing and Installing the Parent/Child Toy-Lending Library. It describes the program thoroughly and provides 17 pages of suggestions for outside sources of funding for the program, including federal agencies and private foundations. This section even includes the Articles of Incorporation for a nonprofit association in case parents need to form one.

As soon as the NCEC funding began, the Laboratory held a workshop for ten prospective consultants so that implementation assistance would be immediately available to any interested agency. (During development, it had been thought that the Laboratory would handle all training of librarians, but it was later decided that a nationwide network of consultants could provide more economical assistance.)

The content of the training sessions for consultants included: an introduction of the Toy Library concepts; a showing of the film, "Learning and Growing and Learning;" and discussions of the film, of the principles and objectives of the program, and of the importance of self-concept in both children and adults. In addition, time was spent in role playing, playing with the toys and games, and discussing the participants' reactions to these experiences. Filmstrips were shown to illustrate different uses of the toys, with emphasis on the importance of the affective interactions between trainer and parent and between parent and child. The last part of the workshop was devoted to an explanation of the installation of the Toy Library. A manual describing that process was used in discussion.

Much time was spent talking about the kind of language to be used with parents. The developers were convinced that the success of the program would depend upon the sensitivity of the person who would eventually be working with the parents, and that this person could not be an authority figure who communicated in a judgmental way. Prospective consultants with an authoritarian or a behavioristic philosophy were thought to be unsuited to work with this particular program, and the Laboratory staff tried to screen them out.

Early in the Laboratory's dissemination effort, state education agencies were contacted to elicit their cooperation. A form letter from the Laboratory Director was sent to all 50 chief state school officers, discussing the concepts and methodologies of the Toy Library and offering the services of a Laboratory staff member to present an orientation session to interested people at the state level. These letters did not produce a great deal of response. However, follow-up telephone calls were directed to specialists

in early childhood education, many of whom expressed interest. In all, positive responses were obtained from 35 state agencies.

At 25 of the 35 interested state agencies, orientation sessions were conducted. Presentations reached as many as 700 people and as few as five, for an overall total of around 1,500. With a full day of discussions, films, and workshops, Laboratory staff tried to convey overviews of the Laboratory in general and of the Toy Library in particular, then to demonstrate the use of specific toys. Usually a representative from GLC set up a display at the orientation session and later visited interested people in the state department.

After the orientation session, materials were left at the state agency, including enough handout information for 1,000 people, a film, a descriptive filmstrip and tape, a set of toys, and other program materials. State agency personnel were encouraged to disseminate information about the Toy Library. Responding to a Laboratory questionnaire, 10 agencies indicated that they had used their meetings as vehicles, nine had used newsletters, nine direct mail, five had held one- to three-day workshops, two had used local news media, and 18 word-of-mouth. Others had left materials on display or had exhibited them at teacher conferences, and some had contacted PTA's and other organizations about the program.

In the Utah State Department of Education, one staff member worked half-time on Toy Library dissemination. Having been trained as a consultant, this person helped to set up Toy Libraries in the state. It should be pointed out, however, that the Laboratory has devoted a good deal of time to strengthening its ties in Utah, in addition to the NCEC-supported contact.

As the third major component of the Laboratory's diffusion plan, 14 Toy Libraries were established as demonstration sites. The staffs at these sites were expected to generate publicity and provide high-visibility evidence of the program's effectiveness. It was anticipated that news of the demonstration sites would be spread by the sponsoring organizations: a Toy Library in a church, for example, would be described in church publications. For this reason, as well as to highlight the Toy Library's adaptability to different settings, a variety of agencies were chosen to host demonstration sites. Schools, a community center, a well-baby clinic, and a mobile van were among the diverse settings chosen. Laboratory-trained people helped to set up the sites and train the toy librarians. The Laboratory also furnished 20 sets of toys and materials to each site, thus defraying some of the expense for the sponsoring agencies. In addition to their dissemination work, toy librarians were asked to keep a brief diary on the parent training sessions so as to provide the developers with feedback on the effectiveness of the training materials.

During the period of the NCEC grant, the Laboratory also sought publicity for the Toy Library in the mass media. At demonstration sites there was local press coverage, including television and radio publicity. When a solicited article appeared in Woman's Day magazine in August, 1972, the Laboratory received approximately 4,000 mail inquiries from parents, agencies, and

educational institutions. The parents were sent a brochure ("Parents and Children Learning Together") that explained the goals and objectives of the program in a highly readable format, heavily illustrated with line drawings and photographs of children playing with the toys. A cost sheet for the toys was included, and the parents were directed to GLC for purchase of toys, or back to the Laboratory if they indicated interest in further information or training. If they requested more specific information, they were given the name of a consultant in their region who had been trained by Laboratory staff as a trainer, and they were referred to a demonstration site if it was within 100 miles of their home. Agencies and institutions received the same brochure and cost sheet, as well as the Toy Library Installation Guide, which gave them much more complete information.

In mid-1973, the NCEC grant expired, and a proposal for further funding was rejected. Now the Laboratory, with very little money to spend on dissemination, is looking for new ways to keep Toy Library diffusion efforts alive. Besides sending out informational brochures in response to correspondence, the staff is trying to provide orientation and training sessions on a self-supporting basis. In November, 1973, staff members traveled to the state of Washington to explain to 350 people how they could install the program. This session (sponsored by the state department of education, the intermediate school districts, and the Parent-Teacher-Student Association) was attended by teachers, librarians, parents, and others. The Laboratory intends to gather data on the results of this presentation. It will conduct similar orientation programs for groups that pay the necessary transportation, per diem, and consulting fees. There will also be at least one training session each month at the Laboratory with a $150 registration fee for participants, and staff members will conduct training in the field for groups of at least five people if reimbursed for their expenses.

SALES FIGURES

Since the consultants are able to help install Toy Libraries without assistance from the Laboratory, and since the materials can be purchased by people who are not implementing the program, Laboratory staff members are at a loss to estimate the number of Toy Libraries now functioning. The final report on the NCEC-sponsored dissemination project gives the numbers of Toy Libraries reported by state education agencies, colleges, and universities as 60. Added to the 13 (out of 14) demonstration sites that have continued to operate, this would give a total of 73 Toy Libraries. However, several state department respondents did not give numbers, but stated, "Many!"; "I cannot be sure of the number as yet"; "One pilot"; "Others scheduled for fall"; or otherwise indicated general optimism.

Have the Laboratory-trained consultants helped to set up many Toy Libraries? Those we contacted have not; they have conducted workshops but have not been asked for help by any agencies setting up programs. Still, they say that the people who have participated in the workshops could probably establish Toy Libraries without any additional help. Thus they state

that they have no way of knowing how many implementations have resulted from their efforts.

The program was conceived of as a whole, complete with parent training, and from the developers' viewpoint a partial adoption cannot be considered a success. However, many purchasers of the materials have undoubtedly picked up at least some of the basic principles. GLC figures for 1972 and the first half of 1973 reveal the sale of 1,336 Librarian Manuals and 461 sets of filmstrips, which are meant to be integral to the parent training program. A larger number of parent guides have been sold: 6,290 copies of Parent Guide I and 2,979 of Parent Guide II. These books describe the use of the toys as learning tools, and if parents fully enter into the attitude towards play that is explained, they will use the Toy Library's principles. But it seems doubtful that the book alone can create the attitudinal changes that are the goal of the training program.

It appears unlikely that more than a few thousand parents have participated in Toy Library courses. This number is a negligible percentage of the target audience, since the stated target, three-fifths of the parents of three- and four-year-old children, numbers in the millions.

DISCUSSION

Conceptualization

The notion of a Toy Library seems to have considerable intrinsic appeal. For parents, the idea of becoming involved in the teaching and learning process is exciting; according to a Laboratory staff member, "That was what motivated the parents to go out and sell our program--they were our best disseminators." Those who have worked in the diffusion effort for the Toy Library emphasize how few programs really involve parents in their children's learning in a valuable way.

One problem with potential users centers around philosophical orientation, since the Toy Library program is firmly rooted in a "whole-child" outlook. Where educators or parents are looking for a behavioristic, achievement-oriented program, there is a philosophical conflict.

Testing

Developers originally acknowledged that recruitment and retention of parents might be a problem, but field-test results showed that parents' reactions to the program were positive. However, the developer seems to have paid less attention to possible resistance from others involved, such as the school (or other agency) administrators who must approve and cooperate with a Toy Library program. Personnel at the field-test sites were cooperative, but later experience has shown that the lack of such support can seriously handicap the program.

The developers' emphasis on affective goals has led to some difficulties with educators who demand rigorous evaluation data. Since developers had no way to measure progress toward an objective like a healthy self-concept other than by accumulating subjective evidence from parents, such educators occasionally are left unimpressed by the quality of Laboratory's findings.

Distribution

The relationship between the Laboratory and GLC is marked by a series of compromises, unmet and perhaps unjustified expectations on the part of both agencies, and most recently by more cordial and productive interactions through the personal efforts of staff members. GLC staff members were initially skeptical about the Toy Library's market potential; the Laboratory staff members have resented the salesmen's inability to provide implementation assistance. They have also been disappointed to find that GLC's usual customers are educators at the elementary level and not the people they wanted to reach with this preschool program. Because GLC needs to use profitable methods, the toys and other materials are advertised through a catalog, although the developers never intended to sell the materials without training. The toys and manuals are not packaged together.

Eventually the Laboratory and GLC began to coordinate their efforts. They agreed that if a Laboratory staff member presented an orientation session at a state department of education, GLC's regional sales manager would attend, make contact with interested persons, and later follow up these contacts. The two organizations discussed a joint marketing study, but no federal money was forthcoming for such an effort, and the idea was dropped.

Linking Agencies

When the Laboratory sent letters to all 50 chief state school officers, there was little response. A staff member says that these letters "just got lost in the paper mill," especially since the recipients were probably wary of being asked to buy something. She says that follow-up telephone calls directed to specialists in early childhood education brought much better results.

The effectiveness of the effort to involve state education agencies was sporadic. In some cases, one or two people in an agency did devote time to Toy Library dissemination if it coincided with their own priorities and organizational arrangements. Low-key methods were used in this "secondary diffusion" through state departments. Laboratory staff members now feel that they should have worked more intensively with the linking agencies. They also feel that a one-year dissemination project did not allow time for enough personal interaction. Some think that they should have contacted other kinds of agencies besides state departments of education, such as daycare organizations and public library associations.

Some Laboratory staff members question the value of the demonstration sites. While the sites did set up Toy Libraries, there was little effort to engage in diffusion activities and little spread to other sites. One staff member suggests that instead of creating demonstration Toy Libraries, the Laboratory should have gone to sites where the program was already being installed. He feels that there would have been less need to help such sites with their own implementation, and the sites could have spent more time on dissemination efforts.

Awareness of the Product

On the whole, of course, the media publicity for the Toy Library was welcomed by the Laboratory. Still, one person notes that it created an image of the product as "a bunch of toys that are fun for everybody," neglecting the course objectives of helping parents and children learn.

Cost Effectiveness

Laboratory records indicate that a total of $263,900 was spent on Toy Library dissemination. Much of this money was received from NCEC, which awarded the Laboratory a $218,000 contract; the rest came from program budgets. The most expensive component of the strategy was "Training Workshops," which accounted for an expenditure of $107,000, but staff members assert that training should have been their most effective tactic since it gave trainees the background to become disseminators. However, there is no evidence to show how many of the individuals trained at these sessions did in fact carry on dissemination efforts. The Far West Laboratory was unable to supply continued support and encouragement for these activities because of limited financial resources.

Evaluation of the diffusion program has been minimal, in part because many of those involved, at the Laboratory, GLC, state departments, and demonstration sites believe that the program is still gathering momentum. Because implementation of the Toy Library can be a slow process, they think that it would be unfair to judge its diffusion on the basis of current results, even if they knew what these results were.

Implementation

A fundamental problem of this program is that target adopters are likely to have difficulty going through the mechanics of installation. The Toy Library is not just intended for school districts, yet it demands both organization and financing. Locating funds has been an impediment to some potential purchasers, such as groups of parents who run cooperative nursery schools. Other parents who are not already organized into such groups have the additional problem of joining forces with an agency or even putting one together. Although the Laboratory's manual, A Guide to Securing and Installing the Parent/Child Toy-Lending Library, attempts to address these problems, it seems questionable whether a book can do much to solve them.

Training has been one of the Laboratory's prime concerns for this product. The program's success depends heavily on the skills of the teacher/librarian, who does not have to be a professional educator--in fact, it is preferable if he is not. The developers' training program tries to give prospective librarians a grounding in the philosophy of the Responsive Program and the Toy Library.

The training provided to consultants equips them to be trainers themselves and to give adopters the other help they need with implementation. Part of the training session for consultants centers around the installation process, including such matters as locating funds.

Quality Assurance

There has been no attempt to monitor implementation of the program, and one staff member explains that such monitoring would be inconsistent with the developers' philosophy. He explains, "The programs we know about conform pretty well to the original plan, but it is a flexible program; it is not highly structured. If we surveyed sites and found out that everyone was doing the same thing, it would be a negative reflection on the program."

SIMULATION GAMES

PRODUCT SUMMARY

Product name: Simulation games

Developer: Academic Games Associates, Baltimore, Maryland

Distributor: Two games are distributed by Academic Games Associates. Six others are available from a commercial publisher, Bobbs Merrill.

Description: Eight games are currently available for purchase. The games vary in complexity and design and can accommodate from two to twenty players in 1/2 hour to 6 hours playing time. In schools, the playing time is usually broken down into several 40-minute periods on consecutive days, although developers do not feel this is the optimal usage. Each game is packaged separately and contains a teacher's manual, which includes playing instructions, pictures of the game's parts, and guidelines for conducting the post-game discussions. A few of the games have boards, but most rely on a packet of information for each player. All but one of the games have consumable parts, but teachers can mimeograph these items so that no repurchase is necessary.

The games currently available include: Consumer (involving players in the problems and economics of installment buying); Democracy (a composite of eight different units that simulate the legislative process); Economic System (mine owners, manufacturers, workers, and farmers market, produce, and consume goods while trying to make a profit and maintain a high standard of living); Ghetto (the pressures that the urban poor live with and the choices that face them as they attempt to improve their life situation); Life Career (working with a profile of a fictitious person, players allot his time and activities among the labor, education, and marriage markets); Generation Gap (simulates the relationship between a parent and an adolescent in respect to five issues differentially important to both); Drug Debate (a series of structured debates on the legalization or prohibition of eight substances); and Take (a learning game designed to teach young children how numbers behave).

Target market: Most users will be in the age range from 13 years to adulthood. The target buyers are teachers, usually curriculum supervisors or chairmen of social studies or home economics departments. Seldom will a principal or a superintendent be involved in a sale, unless a large order for an entire school system is placed, which is a rare occurrence.

Cost: The two games distributed by Academic Games Associates cost $5.95 and $25. The six commercially distributed games range in price from $8 to $35. The average price is $21, and the average number of participants playing a game is 15; therefore, the average cost per person (to the user) is $1.40. If the game is reused, cost per person will obviously decrease.

Evaluation: Research evidence, available from the Center for Social Organization of Schools, The Johns Hopkins University, indicates that the games are as good as other teaching techniques. Performance on tests of factual information shows that the students learn as much as they do from more traditional methodologies. Based on semantic differentials and an intellectual achievement responsibility scale, the researchers found gains in a sense of control over specific spheres of activity.

Current status: Because of inadequate income to support continued in-house game development projects, Academic Games Associates does not plan to undertake development of new games except on a contractual basis. It will complete games currently under development and will try to arrange to have these games marketed by a commercial publisher.

Innovative effects: Simulation games necessitate a change in the traditional relationship between student and teacher. Because the game rules determine student activities, control shifts away from the teacher to the learning materials. As supplementary activities, the games may serve a transitional function between a highly structured classroom and a more open atmosphere. Since games are inexpensive, they do not require a change in traditional spending patterns.

Synopsis of diffusion: Despite their simple appearance, the games have some handicaps as a marketable item. They introduce a new learning method to the classroom, altering the traditional authority relationship between teacher and students. They are also more complex than one might assume; the extensive printed instructions are not easy reading, and teachers seem to benefit from spending a good deal of time preparing to use a game--for instance, they may want to play it with friends beforehand. Optimally, a game should be played over a period of several hours rather than being broken up into 40-minute segments, and the developers recommend playing more than once; scheduling thus may be a problem. In other words, it cannot be assumed that either adoption or implementation of this product will be a simple matter.

Few of the salesmen who have handled the games are motivated to devote a great deal of effort to them. Besides being an inexpensive item, a game does not give rise to repeat sales since the consumable materials are easily duplicated. Six of the games have been marketed by three successive companies, all of which give considerable autonomy to sales representatives. The developers themselves have distributed three other games, but with minimal marketing resources, few sales have resulted. They have developed and field tested three additional games, but decided against marketing these themselves; they are trying to interest publishers in these games and have had little success.

During development the games were extensively field tested and aroused much enthusiasm among test users. As a result, the developers have always believed that this product should enjoy a large volume of sales.

One sales representative did try to recapture something like the field-test situation so as to dispel teacher skepticism; he held a number of workshops in which teachers learned to use the games. But this tactic was too expensive for him to continue. The simulation games' ability to generate enthusiasm among field-test subjects but not among prospective purchasers seems to be an example of the way a developer allowed the process of self-selection by test subjects to distort his perception of the market.

THE PRODUCT

Between 1962 and 1968, a team of social scientists at The Johns Hopkins University developed a series of teaching tools called simulation games. The series is based upon educational theories stressing the need for active student participation; it reflects the belief that the teacher's most effective role is to analyze and respond to students' needs, rather than to control their performance. Simulation games were designed to enable junior and senior high school students, usually in social studies classes, to experience autonomous, self-motivating, and self-regulating role playing in a miniature social system model.

Because of the need for the student to engage in abstract thinking and to apply that thinking in concrete situations, and because of the complexity of most of the social situations simulated (the legislative process, the economic system, ghetto living, career and life choices, parent-child relationships), the games are not appropriate for students below the seventh grade level. The games vary in complexity--some have complicated rules, scoring tables, and several forms and score sheets, while others have simpler rules and little printed matter--so that it is possible to modify a complex game by eliminating some aspects of the model, or to add features of the real world not already simulated to complicate the game, making it more challenging to older students and adults.

Users uniformly agree that the games are stimulating teaching tools; the students like the games and are often surprised, upon reflection, by the changes in their attitudes toward themselves or the system being studied. The games are not intended as substitutes for more conventional teaching methods; rather they are aids to prepare students to participate more actively in discussions and to make more meaningful associations between the unit of study and their own understanding of it. The salesmen feel that the product gives the participant a tremendous identification and emotional involvement with the role he is playing and that it stimulates class discussion--both personal and academic. This is an extremely important selling point in the salesmen's estimation.

The games may be used in a variety of ways to enhance a unit of study: they may be used at the beginning of a unit, introducing the student to major concepts or problems, or they may serve as a concluding activity, summarizing and consolidating important concepts. Because they are open-ended in design, they are extremely flexible in use. For example, in Democracy, urban or statewide issues can be substituted for the national issues given in the game.

To use the games successfully, a teacher may have to undergo some attitudinal and behavioral changes. Because the rules are in the games themselves rather than being imposed by the teacher, and because the outcome of the game, not the teacher, decides the winner, control of the class shifts from the teacher to the learning materials---and ultimately to the students. Thus, teachers who are uncomfortable with

unstructured, open-ended interactions in their classrooms may resist using the games.

As well as being unfamiliar as a teaching tool, the games are somewhat complex to use. While a gifted teacher may soon see how to use the game advantageously, most teachers need some preparation. Developers and salespeople agree that user satisfaction is directly related to the amount of time the teacher spends with the game prior to presenting it to students. The printed instructions included with each game are intended to be comprehensive, and salesmen have reported that they are too lengthy.

DEVELOPMENT

In the first half of the 1960s, educational theories and innovations were receiving much attention in government policy and in the media. Simulation gaming was not a new idea, but previously it had not been applied in the classroom. As early as 1898 Karl Groos, in a book entitled The Play of Animals, stressed the importance of play as a necessary part of the life cycle. During play, he noted, all animals including man practice activities that they will have to cope with later in real life. In the 1920s Dewey wrote about play, stressing its importance as an integral part of the regular school curriculum. With Groos, he shared a belief that children should be allowed to practice role playing and skills that they will need in adulthood.

The decision to actually develop games to produce specific learning outcomes in classrooms came about in the 1960s after several research projects had been conducted on games for school use. In 1961 James Coleman finished one such study of ten midwestern high schools. Noting that sports and cheerleading were more highly valued than school subjects, he suggested the development of several academic games which would be organized like inter-scholastic athletics. In addition to sparking interest in academic subjects, Coleman and his colleagues believed the games would give students a sense of control over their own lives. This "belief in control of environment," Coleman contends, is a major factor contributing to successful achievement in school.

In 1962 Coleman and his associates at The John Hopkins University's Department of Social Relations received a three-year grant of $100,000 from the Carnegie Corporation to begin game development; during the next six years the project received additional funding from Carnegie. In 1967 the U.S. Office of Education funded a segment of the project to conduct experimental research on the effects of games. In all, $900,000 was spent on the games, including research and dissemination as well as development. At the apex of the project, the funding supported a staff of nine people.

As academicians began to realize the usefulness of gaming as a teaching strategy, the media picked up the idea as newsworthy. Several television programs were devoted to gaming in the classroom; Newsweek, Time, the New York Times, and Life ran articles describing educational games;

educational journals such as Instructor, Media and Message, and Social Education discussed the implications of simulation games. At no cost to the developers, a wide audience heard of their games as examples of this innovation. In this way, a large network of potential users became interested long before the developers had a game available for mass production.

The publicity was invaluable in providing willing participants for the numerous field tests that have been conducted since 1962. In one instance, the game Democracy was field tested with 1,400 students at a 4-H convention. Most of the teachers who participated were very willing to experiment with the product, and this positive attitude facilitated the continual revisions that were made in all the games. Each game went through at least three revisions as a result of data accumulated in the tests, and, in many instances, a certain number of experimental versions were locally produced for distribution to teachers in return for extensive feedback.

In the early field tests, the developers attempted to evaluate the games as a teaching tool and to assess whether the simulations contributed to academic achievement and affective growth. Later, the researchers conducted studies to determine whether the games produced measurable factual learning, reduced school absenteeism in poorly motivated students, and enhanced participants' sense of their own capabilities. An example of the research is the following:

> A growing body of theory and evidence supports the view that behavior in general and learning in particular is strongly affected by the individual's sense of 'control of destiny'...that is, the extent to which he believes that his destiny is controlled by himself rather than by luck or other arbitrary features of his environment.... Our hypothesis is...that absense of sense of control is more likely among those who in fact had less experience with situations where they either could control the outcomes or could at least see how their own actions were related to the outcomes. If this is an accurate conception of the variable..., extended experience in simulated environments might remedy the deficiency.[1]

Did the games work? The results of an experiment to test the above hypothesis were published in 1967. Boocock, Schild, and Stoll, using semantic differential scales and an intellectual achievement responsibility scale, found that the games did not produce "sense of control of a global sort... though there does seem to be some development of a sense of control over

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[1] Boocock, S.S., Schild, E.O., & Stoll, C. Simulation Games and Control Beliefs. Final Report. The Center for the Study of Social Organization of Schools. Baltimore, Md.: The Johns Hopkins University, 1967, p. 102.

specific spheres of activity." Another experiment which Boocock conducted in Berkeley, California in 1964 showed that the Life Career game did lead to growth in factual learning. She writes, "Players did better than their controls on listing items and on questions that required understanding of the general relationships between educational and other institutions."

On a visceral level, the developers report that the students enjoy the games tremendously; their written feedback during field tests substantiates this claim. But researchers have been consistently plagued by an inability to evaluate the total effectiveness of a game. They say that the special advantages of teaching with simulation games are not likely to be completely revealed through objective tests of factual information. Learning is explained by a more complex set of variables, including initial knowledge and background of the students, and the nature of the subject matter, as well as teaching techniques. The statement now made by the developers, and backed by empirical data[2], is that the games are as good as other teaching techniques; the students learn as much as they do from more traditional methodologies, and they are more motivated to learn from the games than from other modes.

DIFFUSION

Since the release of the games in 1966, the developers have been frustrated by what they consider a disappointing sales record. They are convinced of their product's merits, and they point to the field tests as evidence that teachers share their excitement. However, two publishing companies have proved unable to generate as many sales as they had hoped for, and an association formed by the developers in an effort to try their own hand at diffusion has also met with little success.

After field testing, when the games were presented to teachers unfamiliar with simulation concepts (and, perhaps, resistant to innovation), salesmen reported encountering much of the traditional skepticism toward new teaching tools. Thus, sales efforts were generally directed toward those teachers most receptive to innovation and most willing to take a few risks in their classrooms. To interest a larger group of adopters, it was felt, would have required more money than the publishers or developers could invest.

Dissemination began on an optimistic note. The teachers who saw the media publicity for the games in the early 1960s and who volunteered for field testing were anxious to purchase and use games themselves. With pressures from teachers to provide games, the developers signed a contract in 1966 with a small commercial company, Simulmatics. The developers had given some thought to producing the games themselves, but they soon realized that their lack of experience in marketing and their major interest in development made it necessary for a commercial company to handle dissemination. The funding agency, Carnegie Corporation, was most supportive in the developers' efforts to locate a proper commercial distributor.

[2]Numerous reports from the Center for Social Organization of Schools at Johns Hopkins.

The developers had been approached by a number of the larger educational publishers, but they chose a smaller company, thinking that in this way they could retain more control over the final product design and the company would devote more time to marketing the games. It was an unfortunate choice because Simulmatics proved to be too small--they didn't have the capital to invest in a large run of games initially, and, because the company was not experienced in producing games, the products were not up to the standards expected by the developers. Nevertheless, the developers stayed with this company for two years, until the company went bankrupt. Looking back, the developers complain that the company initiated very little marketing strategy and did not follow up on the numerous inquiries and requests that were received during the time of the contract. They felt that the company was unwilling to take a chance with the games, since they were such a new item. (It must be realized that these comments represent only the developers' point of view, since no information is available from those employed by Simulmatics.)

The time is now late 1968 and the Carnegie money has run out; the team decides to form a nonprofit corporation, Academic Games Associates (AGA), that will be subsidized from royalties they expect to receive from the games, augmented by income they expect to earn through consulting contracts. The monies will provide a source of funds for continued game development. Each designer holds the copyright on his or her own game, and each will contribute a major percentage of the royalties to the corporation. Through a series of misadventures, the corporation was denied nonprofit status by the state and thus became a corporation with privately held stock. When federal money was awarded to the Hopkins Games Program, which became a part of the newly-formed Center for Social Organization of Schools based at the university, the corporation remained separate and received none of the funding. The Hopkins Games Program's activities were research-oriented; the corporation's, development-oriented.

By 1969, the developers had signed a new contract with a large educational publisher, Western Publishing, which advanced $5,000 for each of the five games that it bought in the first year. Western Publishing was sophisticated in educational marketing, and its staff was enthusiastic about the product. Initially, two direct mailings advertised the games, several journal ads were run, demonstrations were held at conventions, and articles were fed to educational magazines. However, from 1969 until late 1973, Western relied upon 40 commissioned representatives in the field to market the games.

The strategies that these people used naturally varied according to their perceptions of the market, their contacts, and their personalities. One representative held 30 to 40 workshops for teachers in the first two years that he sold the games. He felt that the games needed to be demonstrated to be sold, and he gambled on his time to generate those sales. He now feels that as a vehicle for selling, the workshops were not successful, because the number of sales he achieved was not commensurate with the time expended. He needed a large order to achieve an adequate commission, and the large orders were not forthcoming. Another representative, who simply left loaner copies of the games with potential users, sold nearly as many by spending only one-fourth as much time. The men knew what their time was worth, and they would not spend a lot of time on a product that

would not sell. Neither of these salesmen felt that the games were a successful item, although both were convinced that the product was potentially valuable to educators.

In the developers' view, workshops are important avenues to dissemination, but there is no way of knowing how many direct sales are generated from workshops held by developers, since Western Publishing does not keep records indicating the source of sales.

In late 1973 Western sold the games to the Bobbs Merrill Publishing Company. Bobbs Merrill had been looking for multimedia, elementary language arts materials which they purchased from Western; the games were included as a part of the total sale. Although the games were neither in the subject area nor at the grade level this company was interested in, a representative from the company views them as "a fine product." The company intends to retain the same commissioned representatives who sold the games for Western Publishers. They have printed a brochure but have not had time to mount a sales campaign. Bobbs Merrill has never before been involved in the sale of games; a company representative notes that they have not yet assessed the market, but he hopes that the rising interest in career education and consumer affairs will attract a large number of social studies teachers and career information specialists to at least two of the games, Life Career and Consumer.

Since 1969, the developers have operated Academic Games Associates as a service and development company. Seven games were developed from the corporation's income; three of these games are marketed by them; four more have recently been field tested. An eighth game was developed for a client under a one-year contract. Their primary dissemination tactic has been to place ads in a journal, now edited by their corporation. This journal, Simulation and Games, is a quarterly that reaches 1200-1500 people; it sells for $12 a year to individuals and $20 to institutions. The journal is interdisciplinary and publishes articles on theory, design, and research related to simulations and games. From October 1968 through May 1973 the journal was financed through the federal grant to the Johns Hopkins Games Program; it is commercially published, and $32,000 was allocated to it for staff time in fiscal year 1972. On June 1, 1973 the journal's editorial offices moved to Academic Games Associates. The journal's audience consists of those interested in design and gaming techniques. Its readers may include many secondary level teachers, but a sizeable portion are researchers.

The developers also received one free ad in Simulation gaming news, in exchange for their mailing list. There was no money to run a direct mail campaign. The rest of the dissemination came about through word-of-mouth from people familiar with the commercially produced games, and through responses to inquiry letters (about 25 letters per week) generated by the earlier articles in educational publications.

As of this writing, Academic Games Associates is nearly bankrupt. The royalty checks from the commercial publisher pay the office rent and salaries for the president, the administrative assistant-treasurer, and the half-time secretary. One of the games (Trade and Develop) has sold out, and there is no more money to rerun it. Because of its precarious financial base, the corporation has decided to curtail development of in-house games. It does not plan to market the seven games it has developed since 1969; instead, it is trying to interest a commercial publisher in producing and marketing these games, but to date it has had little success in this. In the near future, development of new games will be done only on a contractual basis.

SALES FIGURES

Developers have no records of the number of students who have played the games; it is therefore impossible to assess the impact of the games on the target audience of students. Neither do the records indicate who actual purchasers were. We do know that teachers are not the only purchasers; many games have been bought by individuals, and over 1,000 Girl Scouts and 4-H Club members have used the games. But the largest audience for simulation games, according to the developers, is social studies teachers. Because we know the audience includes many different groups, if we compare the number of social studies teachers to total sales, our figures will indicate that the disseminators have covered a larger share of the audience than they actually have. However, since other figures are unavailable, we are forced to compare sales to the total audience of social studies teachers for an indication of the success of the games.

The U. S. Office of Education estimates that there were approximately 122,766 high school social studies teachers in the United States in 1970.[3] Chart I shows sales by Western Publishing from June 1970 to December 1973 and sales by Academic Games Associates from 1969 to December 1973; figures are not available from Simulmatics, the first and now defunct company that marketed the games. Therefore, our estimates are lower than they would be if a record of all sales were available.

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[3] Simon, Kenneth and W. Vance Grant. Digest of Educational Statistics, 1970 Edition. Table 50, page 39 and Table 53, page 40.

TABLE 1

SIMULATION GAME SALES BY THE COMMERCIAL DISTRIBUTOR, WESTERN

GAME	NO. COPIES SOLD 6/70 - 4/72	NO. COPIES SOLD 5/72 - 12/73	% OF SOCIAL STUDIES TEACHERS
Consumer	2,955	1,118	(3%)
Democracy	5,796	2,203	(6%)
Economic System	2,239	1,031	(3%)
Generation Gap	3,625	1,208	(4%)
Ghetto	6,142	2,201	(7%)
Life Career	2,630	1,528	(3%)

SALES BY DEVELOPER'S OWN CORPORATION, ACADEMIC GAMES ASSOCIATES through 12/31/73

Trade and Develop (from 9/69)	740	(.6%)
Drug Debate (from 8/11/70)	202	(.2%)
Take (from 11/16/70)	784	(.6%)

The Directory of Educational Simulations, Learning Games and Didactic Units lists 20 commerically available games that could be used in secondary social studies classes. Thus if every potential purchaser bought one game in 1969, the market share for each of the 20 games would have been five percent. Those games marketed by the commercial publisher have done quite well, since sales have averaged between three and seven percent, while those sold by the developer have captured only .5 percent and .2 percent of the audience. A viable explanation for this discrepancy is that the developers were operating with a very small staff and no money for publicity, while the commercial firm had 40 commissioned representatives throughout the United States.

DISCUSSION

Design

On the surface, it appears that simulation games would be easy to disseminate. The packaging is simple, the product is inexpensive, and there appear to be few barriers to adoption and use. But gaming is a novel idea in education; implementation is more complex than it might appear at first glance. The instructions themselves are relatively complex. Extensive printed instructions are included with each game, and suggestions for post-game discussions provide a starting place for a teacher's own ideas. Although the developers claim the instructions were totally effective with the field-test users, the salesmen maintain that the instructions hindered sales because they were too complicated and lengthy. One salesman thinks that an audio cassette should be provided with each game--one side for teacher instruction, the other directed toward students.

The complexity of the games also gives rise to the suggestion from the developers that the students should play the game several times, since some students do not fully grasp the strategy of a simulation during the first play. In a school where teachers are not pressured to cover a certain amount of information in a given time period, it may be possible to schedule several playing periods. Many teachers are not free to do this, however, and if they can only play the game once with each class, they may not think the game totally effective.

Salesmen cite several other reasons for the difficulty in marketing the games: most teachers are not responsive to unstructured learning situations where the locus of control resides in the students, and if teachers are not philosophically in agreement with learning through simulations, there is not much one can do to convince them; the games and the instructions are relatively complex, and there may be no way to simplify them enough to appeal to a wider range of teachers without sacrificing the basic learning objectives. The games do not generate repeat sales, since teachers can copy consumable items and users of one game do not seem to request other games, and this hurts the salesmen.

There are few physical barriers to adoption. Players need only enough space to confer and strategize together; they do not need to sit around a large table in order to play the games. Noise sometimes becomes a minor problem; students can become quite boisterous during play, and this may be disturbing to neighboring classrooms.

The Development Process

The independence of the developers during the early stages seems to have been valuable. Several members of the staff mentioned that it was the "hands-off" attitude of the private foundation that was most helpful during development; they say that they could not have done the developmental work under government grants with the usual demands for extensive reporting and rigid deadlines. Having the freedom to retest and revise the products continually for six years enabled them to produce nine marketable games (and more than 20 other games that did not withstand the rigorous field testing).

Field Testing

Beginning in the early stages of the development process, the staff tested their games with teachers who were attracted to the simulation concept. Like many other developers, they assessed the merits of the product after the field-test participants had become familiar with the games both through workshops and class use. Since the developers had worked with those teachers who were open to innovation and who had had experience with the product, field-test results led them to believe that an extensive market existed for the games. However, when salesmen tried to sell the product, they encountered many teachers who doubted the merits of this new teaching tool. In other words, the developers had selected a biased field-test audience and discovered the limitations of their market only after the product was released.

Since field testing was conducted with teachers, who are also the purchasers of the games, the developers were not confronted with the difficulties of other product developers who have to appeal to two separate audiences of users and buyers.

R&D and Sales

Does the product's research background matter to users? How concerned are teachers with the evaluation data? Not very. Salesmen for the commercial distributor report that very few of their purchasers--potential or actual--have requested the field-test information, although it is easily available and the salesmen mention it in their explanation of the product.

When teachers do ask for evaluation findings, which happens infrequently, they tend to use them to convince a principal to buy a game that they want. Generally the research findings are disseminated to the growing number of academicians interested in gaming as an educational tool.

Relationships between Developers and Disseminators

As mentioned earlier, the developers and the commercial distributors have disagreed about the audience appeal of the product and about effective means of dissemination. The developers were convinced by the media and by their field-test respondents that a sizeable market existed. The publishers were unable to tap that market, if indeed it existed in the proportions assumed, to an extent that returned them a satisfactory profit.

Developers maintain that they are not businessmen, nor are they interested in making money, yet they are quick to condemn the salesmen's analyses. Salesmen say that academicians are hopelessly naive about what educators will buy and use, and they comment that a dispositon toward research and documentation does not produce a usable product.

The salesmen say, based on lack of sales, that the games are not being used; teachers may be proud that they have a modern teaching tool, but it's sitting on the shelf. If they were using it, there would be repeat sales due to their satisfaction with the product. Both groups agree that a simulation game is not a simple teaching tool; neither calls it unmarketable, but there is no agreement as to what its complexity means to users. Salesmen say that teachers are intimidated by the product; developers disagree, based upon their experience. When the salesman can convince the teacher to devote the time to reading the instructions or to playing the game, then the product can almost sell itself. But this is a formidable obstacle for a salesman to overcome. And is it worth his time? Financially, the incentives for selling simulation games are very small. It is a low-cost product that generates few repeat sales, since teachers can reuse the product many times and since the consumable items can be easily copied.

Cost Effectiveness

Neither the developers nor the distributors have broken dissemination costs into components. Early dissemination efforts on the developers' part were supported by a grant from the Carnegie Corporation. The money was used for staff salaries and travel to workshops and field-test sites. The workshops were generally held in schools, churches, faculty lounges, and other rent-free spaces. Field tests were held during school hours and incurred no costs to the project. Later efforts were financed from the royalties and income earned by the corporation through long-term and short-term consulting contracts.

With the private funding for workshops, the developers did not have to validate the cost effectiveness of their efforts. Salesmen, on the other hand, were forced to look critically at the time expended per sale. One salesman who held 30 to 40 workshops for teachers in two years now feels that the number of sales that resulted was not adequate to justify all the time expended. Another salesman sold nearly as many by devoting only one-fourth as much time and simply loaning copies of the games to potential buyers.

Training

Developers think that training is advantageous but not necessary for implementation of the games. Workshops in which the teachers actually play the game are thought to be the best training, but since workshops are not always feasible, the developers have attempted to make the teacher's manual so explicit and comprehensive that any teacher can explain the game upon reading the instructions. The developers feel, on the basis of their field testing, that the manuals are effective training devices. The salesmen do not agree. They feel the instructions are much too complicated; that there is need for instructional objectives, and that more visual presentations, such as line drawings or photographs of people playing the games, should be included.

Salesmen say that teachers are not making optimal use of the games, contending that if they were, sales would be greater. This tends to suggest that dissemination of the games would have been favorably affected if follow-up support and incentives for further use had been offered. But again, with a product that is as inexpensive as simulation games, there is not sufficient financial incentive for salesmen to engage in time-consuming efforts.

MINICOURSES

PRODUCT SUMMARY

Product name: Minicourses

Developer: Far West Laboratory for Educational Research and Development, San Francisco, California

Distribution: Macmillan Educational Services, Riverside, New Jersey

Description: Seven independent multimedia packages. Each package is a 15-hour self-instructional course for pre- or inservice teacher training. Each course consists of 5-6 lessons including: (a) a handbook explaining the behaviors to be taught, (b) an instructional film that demonstrates and explains the behaviors, and (c) a model-test film in which a teacher demonstrates all of the skills in a free-flowing situation. To use the course the school provides (a) a film projector and screen, (b) a small room for microteaching, (c) a part-time coordinator, (d) one hour of released time for each microteaching practice session, and (e) a videotape system (camera, monitor, recorder, microphone, and one reusable tape for each participating teacher). Developers note that an audiorecorder can be used instead of the more costly video equipment. However, because a participant is able to observe numerous additional teaching behaviors on videotape, they suggest that it be used whenever possible.

In using a Minicourse the trainee follows this pattern: after reading the handbook, watching the instructional film, and testing his or her ability to identify the target behaviors on the model film, the trainee practices the lesson's skills with about five of his or her regular pupils in a five-minute microteaching lesson in front of the videotape camera. Self-evaluation of the videotape then takes place, and the lesson is taught a second time. This procedure is repeated for each of the four or five lessons in each course.

Minicourses also include a coordinator's handbook explaining installation procedures. The coordinator is responsible for selecting teachers, training them to use the equipment, scheduling, and trouble shooting.

Available courses are:

Minicourse 1: Effective Questioning. Participants learn skills which increase the quality and amount of pupil involvement in class discussions. Teachers learn techniques such as pausing, redirection, and prompting.

Minicourse 2: Developing Children's Oral Language Objectives and Skills. This Minicourse trains teachers to use strategies that will help children learn to speak and think with more precision and flexibility.

Minicourse 5: Individualizing Instruction in Mathematics. The course emphasis is on developing tutoring skills to help students with difficulties in the basic number operations and verbal reasoning problems. When the teacher has completed the first four lessons, he studies four techniques for organizing his classroom so that he has more time for remedial math tutoring.

Minicourse 8: Organizing Independent Learning at the Primary Level. Teachers learn organizational procedures that enable them to work with pupils individually or in small groups while other students work independently.

Minicourse 9: Higher Cognitive Questioning. By asking students to support their generalizations, to make predictions, and to give opinions, teachers learn to help children develop their abilities to think carefully and logically about a subject.

Minicourse 15: Organizing Independent Learning at the Intermediate Level. This course is designed to help teachers increase the independent learning opportunities of their students at the upper elementary level.

Minicourse 18: Teaching Reading as Decoding. This course develops instructional skills to foster pupil competency in identifying letters, establishing single and large letter unit sound-symbol correspondences, using contextual clues to aid in decoding unknown words, and applying a specified problem-solving sequence to the decoding of an unknown word.

The Laboratory has recently completed development of four additional courses: Interaction Analysis, Discussing Controversial Issues, Content Analysis of Textbooks for Black Students, and Role Play as an Instructional Technique. Macmillan Educational Services has decided not to market these four courses; an alternative distributor has been found for one course, Interaction Analysis.

Target market: The majority of courses are for elementary school teachers. Target buyers are principals and central office inservice staff.

Cost: Start up costs are about $1,500 for one Minicourse. An additional $1,800 would be required for a videotape system if one were not available. (Although developers strongly recommend use of video equipment, they note that an audiotape recorder with one reusable tape for each teacher can be used in those instances where it is impossible to obtain a videotape system.) It is assumed that most school districts have film projectors and a suitable microteaching room.

Maintenance costs are minimal: each new teacher must have a handbook (averaging $2.50) and access to a reusable videotape ($30, or $1 if prorated across 30 teachers). Maintenance cost: $3.50 per teacher.

If the developer's schedule is followed for maximum utilization the cost for 600 teachers taking a single Minicourse over a two-year period is about $20 per teacher, including the cost of videotape recorders.

(None of these figures includes costs for release time or coordinator time--both of which are frequently absorbable through a variety of plans. If these must be added, the cost would be an additional $55 a year, and the overall, 600-based per-teacher cost would be: $73.)

Evaluation: Main field test results for Minicourse 1 indicate that teachers made statistically significant gains in 10 of 12 specified behaviors. Before taking the course, participating teachers repeated their own questions an average of 14 times during the 20-minute tape; after the course, they repeated their own questions only 5 times. Before the

course, the teachers repeated pupil answers an average of 31 times; after the course, only 5 times. In addition, teacher talk was reduced to about half the precourse level, and student responses to teacher questions actually doubled from an average of 5 words to an average of 12 words after the course. Follow-up studies conducted as long as 3 years after training indicate that teachers retain virtually all of the skills taught in the course.

Similar changes in teacher behavior are documented for the other Minicourses. Relatively little evidence has been collected about the subsequent impact which teachers using these skills have upon children, but this issue is now being studied in some detail.

Current status: Production of further Minicourses has been halted while the Laboratory studies the impact which teachers use of Minicourse skills has on children.

Innovative effects: The Minicourse represents a significant departure from traditional approaches to inservice teacher training. It is self-instructional, self-contained, multimedia, and targeted to highly specific skills. The first change it demands from most schools or districts is in their budgets, since start-up costs are high and few districts have a substantial line item for teacher training. The Minicourse also requires sophisticated hardware that is not found in all districts. Scheduling and coordinating the microteaching sessions requires the part-time efforts of a designated staff member, and usually the schedule is set up in such a way that released time and substitute teachers must be provided.

Synopsis of diffusion: Although it was assumed that Minicourses would be marketed through commercial channels, this avenue does not seem well suited to this product. The developers, in their effort to build an entirely self-sufficient package for teacher training, created a complex product with a high price tag that is tied to sophisticated hardware. Many users react with enthusiasm after their experience with the product, but many are initially taken aback by its unfamiliarity and cost. Not only do salesmen have difficulty overcoming this resistance, they must take some time to understand the product themselves. However, their incentives are not adequate to warrant a great deal of effort since a district usually buys just one or two Minicourses and there are few repeat sales because only seven courses exist.

Realizing that the publisher was having difficulty generating large sales volume, the developer applied for federal dissemination funding. The resulting demonstration project allowed some 5,000 educators to see Minicourses in operation and to form an opinion of their value. A study of sales figures reveals that it was primarily in the areas served by demonstration sites that districts bought the product; in short, this demonstration project seemed to work. Staff members say that through their extensive personal contact with site personnel they were able to encourage these people to conduct the necessary outreach efforts, which seem to have been missing from some other demonstration

programs. They also note that "floating demonstrations," which operated for just six weeks at each site, did not stimulate adoptions; they were too short and never sufficiently tied to a program of local outreach.

Some linking agencies besides the demonstration sites also helped to bring about use of the product. When these agencies' priorities encompassed the aims of Minicourses, they were willing to supply the kind of intensive effort that is apparently necessary to overcome districts' initial resistance.

THE PRODUCT

Minicourses are self-contained, multimedia packages designed to develop specific competencies for elementary school teachers. Based on a process called microteaching, each Minicourse focuses on a set of carefully defined skills which make up a teaching strategy. The teacher practices the skills in short, videotaped sessions with a few pupils. In each of the series of seven Minicourses, the teacher first reads in a handbook about the rationale and nature of the behaviors to be learned; then he views an instructional film in which these skills are demonstrated; next a model film tests his ability to identify each of the skills. The teacher then practices the skills, usually with a small group of pupils, in a microteaching session that is videotaped for self-evaluation. After evaluating his performance, the teacher videotapes his second effort to use the new skills in a microteaching situation. This process is repeated in each of the four or five lessons that comprise each Minicourse.

The seven available Minicourses impart general classroom skills that are not tied to any particular curriculum; most of them--Effective Questioning, Higher Cognitive Questioning, Organizing Independent Learning at the Primary Level, and Organizing Independent Learning at the Intermediate Level--are not linked to any subject area. (The three other courses are entitled, Developing Children's Oral Language Objectives and Skills, Individualizing Instruction in Mathematics, and Teaching Reading as Decoding.) The skills to be learned are concrete: for instance, in Minicourse 1: Effective Questioning, they include pausing, redirection, and prompting.

To use a Minicourse, a school needs to designate a part-time coordinator and provide some space and hardware. The coordinator selects teachers, trains them to use the equipment, sets up a schedule, and makes sure the process works smoothly. A small room must be available for the microteaching. The necessary audiovisual equipment includes a film projector, screen, and a videotape system consisting of a camera, a monitor, a recorder, a microphone, and tapes (which are reusable). Although developers note that audiotape can be used in lieu of videotape, they strongly recommend the use of video equipment since participants are able to observe many additional teaching behaviors on videotape. Research evidence indicates that audiotape is as effective as videotape for teaching the specific skills in Minicourses 5 and 9; no comparative research has been conducted for the other Minicourses. Schools nearly always give teachers release time for microteaching.

DEVELOPMENT

In the winter of 1965-66 a few educators working at the newly established Far West Laboratory for Educational Research and Development had the opportunity and the responsibility to define how several million dollars of the public's money would be spent to improve education. Along

with the governing executives of several other regional laboratories and research and development centers created by the Elementary and Secondary Education Act of 1965, they were given a relatively free hand in deciding what programmatic efforts were most likely to improve educational practice.

For the next six months, this group studied educational needs and discussed alternatives. People from schools and universities were invited to conferences at which these needs were reviewed. This work led to a selection of twelve areas for further study and the development of a postion paper in each area. In early 1967 the executive panel, board, and staff of the agency then rated each according to importance of the need, probability of solution, technical feasibility, and funding potential. According to this rating procedure, one of the two major needs selected for study was the improvement of teacher training programs.

Having settled the question of what needs were to be addressed, it was necessary to decide what type of product or service to develop. After an extensive review of the literature, the staff concluded that the microteaching approach to teacher education, developed around 1963 at the Stanford University School of Education, had the highest prospects for payoff. Research reports showed that the mircoteaching method, focusing on a specific skill which the teacher practices in short lessons with a few pupils, was an effective method for changing teaching practices.

The developers believed that innovation could not take place unless a school district was given a tangible product--a self-contained package. They argued that innovations like team teaching had never been widely or successfully adopted because they were vague concepts unaccompanied by specific or adequate implementation directions.

Funding for the Laboratory's development work came from the U. S. Office of Education. The development of a Minicourse was a large-scale team effort, involving four to eight professionals for each course at the peak of the work. The production of a course took from 24 to 36 months and each one cost between $75,000 and $325,000 to produce. Over 5,000 teachers field tested the course.

A thorough description of the development process is available from the Laboratory[1]; the process included the following key stages:

Course Selection

The need for each Minicourse was determined primarily through a literature review of pertinent educational research. Little systematic effort was made to test user interest in alternative arrays of Minicourses.

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[1] Borg, W. R., Kelley, M. L., Langer, P., & Gall, M., The Minicourse: A Microteaching Approach to Teacher Education. Beverly Hills, California: Macmillan, 1970.

Preliminary Development and Testing

After selection of a topic and a set of skills, a rough form of each course was developed and was field tested with approximately 25 potential users. The test was designed to assess the probability that the course would achieve its objectives and to gather information to use in revising the materials.

Main Form Development and Peformance Testing

After passing the preliminary test, each course was revised. Specific measures and standards were developed for evaluation, and testing was then conducted with about 50 subjects.

Main field tests for all Minicourses followed essentially the same procedure as that for Minicourse 1. To determine whether the course brought about the desired behavioral changes, three 20-minute videotape recordings were made of each of the 48 teachers in the main-field-test sample. One tape was recorded before training, another immediately after training, and the third after four months had elapsed. Pre- and post-course tapes were mixed at random and scored. Results showed that teachers made statistically significant gains in 10 of the 12 skill areas. For example, the amount of discussion time occupied by the teacher talking was reduced from over 50 percent to below 30 percent, while the number of questions that called for higher cognitive pupil responses increased by 15 percent. Teachers repeated pupil answers an average of 31 times during the precourse tapes but only five times during the postcourse tapes. Tapes made four months after the end of the course indicated significant loss in only one behavior area (prompting) and significant improvement in two areas; virtually no loss of learning occurred during the four months in the other eight areas measured.

Similar field tests have been conducted for the other six Minicourses which have been released for commercial distribution; all provide further evidence that Minicourses bring about substantial changes in teachers' classroom performance.

Operational Form Development and Testing

An operational form of the course was then developed and tested on a group of 40 to 200 subjects. The purpose of this test was to determine if teachers could use the course in a practical setting without assistance from the developer.

The developers wished to discover any unanticipated operational problems so that they could develop extra materials if necessary. Information was gathered from coordinators; teachers also made suggestions and provided their perceptions of the course, of their own performance,

any of any subsequent changes in pupils' behavior. Comments were overwhelmingly favorable, and only a few suggestions for changes were made. The handbook was revised in response to criticism that it used unnecessarily technical language.

A study conducted three years after training showed that participants had retained virtually all of the skills taught in Minicourse 1. In eight of the ten skill areas measured, mean scores were higher for the three-year follow-up than they were before teachers had participated in training. In only one area, student use of one-word responses, was the precourse mean more favorable than the three-year follow-up mean. The training continued to be effective in reducing three negative teacher behaviors: repetition of the question, repetition of pupil responses, and answering one's own question.

A study conducted independently of the Far West Laboratory[2] indicated that self-feedback of the kind provided in the Minicourse is just as effective as supervisory feedback and that practice in a microteaching situation is as valuable for developing teaching skills as practice with an entire class. Another independent study[3] supported Laboratory findings that pupil participation in discussions increases after a teacher has taken Minicourse 1.

In all, the Laboratory had projected 24 Minicourses which it intended to produce in the manner described above. The development work came to a halt when the funding for the program shifted from the Office of Education to the National Institute of Education (NIE). The Laboratory had evaluated Minicourses only in terms of their success in producing the desired changes in teacher behavior, but NIE demanded evidence that there was a demonstrable link between teacher skills and student outcomes. The Laboratory argued that it was difficult to show these linkages because many teaching skills have a combined impact on student learning. The Laboratory pointed out that not enough Minicourses have been developed to insure the presence of all the critical behaviors. In other words, the developers contended, a more powerful "treatment" needed to be developed before a meaningful test could be conducted using student success in traditional terms as the dependent variable. The Laboratory lost the argument; it is now embarking on a research project to test the relationship of teacher behavior to student outcomes. Of the 24 courses proposed, seven were released through a commercial publisher. The publisher declined to distribute the four additional courses which were completed recently; another distributer has been found for one of these Minicourses. Work on the other courses was either shelved mid-way through the testing cycle or was never started.

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[2]Dodge, G. G. and Pinney, R. H., Variations of Practice Location and Supervision in an Inservice Training Program. Unpublished MS. Minneapolis: Upper Mid-west Regional Educational Laboratory, 1969.

[3]Foster, G., A Final Evaluation of the Curriculum Improvement Center, Elementary and Secondary Education Act, Title III, ESEA Project. Punta Gorda, Florida: Curriculum Improvement Center, 1969.

DIFFUSION

From the beginning, the developers planned to turn Minicourses over to a publishing house for distribution. They located one publisher, Macmillan, that was interested in marketing the product. Developers felt that the product would be easily diffused, based on the enthusiastic responses of field-test participants. Salesmen, however, found the product difficult to sell and not very lucrative. In 1971 the Laboratory received funding from USOE to set up demonstration sites across the country, and this project seemed to be successful in promoting the sale of Minicourses.

It was assumed at the outset of the development cycle that the Laboratory would not be involved in the dissemination process. This strategy was based on an evolving USOE policy: Laboratories and R&D Centers were to conceptualize and develop products, test them to insure that they would perform according to objectives, and then release them to a commercial publisher who would be responsible for production of the final form and for dissemination. When the first Minicourse was ready for release, few publishers were interested. Only one, the Macmillan Company, submitted a detailed, substantial proposal; a contract was signed in late 1969. Over the next four years Macmillan agreed to distribute six more courses and has invested several hundred thousand dollars in production and marketing.

Macmillan has approximately 150 salesmen in the K-12 division. It was assumed that these salesmen would both sell Minicourses and provide installation support to users. To supplement this sales force, the publisher sponsored several introductory conferences across the country and disseminated a number of pamphlets through direct mail campaigns.

One significant problem that began to emerge early in dissemination was the need to interest the salesmen themselves in Minicourses. Each had his own territory, most were already at or near the peak of the salary and commission ladder, and furthermore, most found Minicourses difficult to understand themselves--let alone to explain to prospective customers. To overcome this last difficulty, a series of workshops and training sessions was held for the salesmen over a period of several years. The problem of financial incentives was not as easy to resolve. Typically, only one or two Minicourses were sold to a school, yet with the same effort a salesman could sell a major textbook line and get higher commissions. Some bonus or extra commissions were allowed eventually, but nothing ever made Minicourses a substantial income source for most salesmen. To the extent that the publisher was successful, results seemed to come from the efforts of one or two company representatives who followed up on sales and promotion efforts on a nationwide basis.

As pressure mounted on USOE to demonstrate the effectiveness of educational research and development, the Minicourse was singled out as one of three major products to get special dissemination focus. In 1971 the Laboratory received a grant of nearly $300,000 from the National Center for Educational Communications (NCEC) to support efforts to create aware-

ness and use of Minicourses. This grant supported the Laboratory's first major plunge into dissemination. Prior to this time, its diffusion role had been limited to publicizing the Laboratory as a whole and helping Macmillan to conduct workshops. The Laboratory was selected to receive the demonstration grant because the Office of Education believed it would be inappropriate to fund the publisher, a profit-making organization, directly.

At the outset of the demonstration project, the Laboratory mailed announcements to the 5,000 largest school districts in the nation. The mailings included a letter from the Assistant Commissioner, NCEC, a letter from the Laboratory director, a reprint of a Newsday article on Minicourses, and a return mail card. One thousand people, or 20 percent of the recipients, requested information about sites where they could see Minicourses demonstrated. The returns confirmed that the locations selected for demonstrations were areas where there was considerable interest in Minicourses. In four other areas where there was a high level of response, the Laboratory decided to operate short-term "floating demonstrations." Laboratory staff members coordinated these floating sites and soon discovered that six weeks was too short a time to publicize and attract all teachers in the community who were interested in Minicourses. Visits to the center began to increase just when the site was scheduled to move on; since the schedule had been prepared long in advance, it was impossible to linger in the community and demonstrate Minicourses to teachers whose interest had been recently sparked.

Responsibility for the operation of the long-term sites was given to local and regional agencies including one state department of education, two university schools of education, a university extension department, a county office, and a school district. This mix was deliberately selected to explore the effectiveness of different agencies in a linking role. Laboratory staff trained 21 people from these institutions in the coordination and dissemination of Minicourses. The Laboratory served as overall coordinator; the linkers were instrumental in insuring maximum participation of local schools, conducting demonstrations for a total of 4,500 visitors, and disseminating information to other educators. When requested, Macmillan was to provide follow-up information and preview materials to people who visited the demonstration sites.

A site was generally open one morning each week for visitors, who met the coordinator, watched a slide-tape overview of Minicourses, and had a chance to ask quesitons. Visitors then viewed sample course films, watched a teacher microteaching, or talked to a teacher about his evaluation of the program. If the coordinator was someone other than the site principal, the principal also joined the demonstration to give a view of the Minicourse from an administrator's perspective.

Evaluation of the demonstration project was based on forms completed by each visitor, a telephone follow-up study of educators who had visited

the sites, and an analysis of sales reports from the geographic areas where demonstrations were made. Findings documented in the final report include the following[4]:

> Approximately 5,000 visitors to demonstration sites viewed a Minicourse in operation, had an opportunity to talk with a peer and reported that they had an experience that was useful in evaluating the potential of the Minicourse.
>
> Based upon estimates derived from a random sample of demonstration site visitors, it is concluded that approximately one-half of the visitors would use a Minicourse if it could be obtained by borrowing it from a nearby intermediate agency. At the point when the sample was taken (about three-fourths of the way through the contract) about ten percent of the visitors had already secured and used a Minicourse. Another 15 percent indicated that there was an "excellent" chance they would do so within the next year.
>
> At the end of the contract, demonstration sites estimated that 17,000 teachers had used or would use a Minicourse as a result of the demonstration effort itself--excluding uses derived from purchases or rentals made as a result of the demonstrations.
>
> The results also showed that the commercial publisher frequently failed to follow-up on contact leads, that there was a significant variation in the effectiveness of the agencies selected to run the center, that school personnel required careful training in order to serve as effective demonstrators, and that the staffs and the individual demonstration center personnel were critical in determining effectiveness.

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[4] Hutchins, C. L., and Dunning, Barbara, Final Report: A Project to Increase the Utilization of Minicourses through Seven Regional Demonstrations. San Francisco: Far West Laboratory for Educational Research and Development, 1973.

As the demonstration project was drawing to a close, USOE, in a separate effort, selected Minicourses as one of ten products to receive major publicity through an awareness mobile display. From September 1971 through June 1973 the Products Display Demonstration traveled to sites where presentations had been requested by local educational groups. The display featured a large audiovisual showcase for each of the products, along with consultant presentations. Several thousand people learned of Minicourses as a result. Through December 1972, organizers of the display forwarded to the developer about 2,000 cards requesting further information on Minicourses.

To supplement the major demonstration effort and the work of the publisher, these are some of the additional efforts conducted by the Laboratory:

a) Beginning in early 1971, the Laboratory worked out cooperative relationships with a number of linking agencies. An example is an arrangement with the Northern Colorado Board of Cooperative Educational Services (NCBOCES). A regional service center supported largely by local funds, NCBOCES was loaned three sets of Minicourse films during the 1971-72 school year. In exchange, NCBOCES contacted the 66 people in Colorado who had responded to the mailing that launched the Minicourse demonstration project. It also circulated NCEC-sponsored Minicourse brochures and Installers Guides throughout the state. At its own expense, NCBOCES sent one of its staff members to the Laboratory to receive training as a Minicourse installer. Several months later it paid for a Laboratory staff member to travel to Boulder, Colorado and give a full day's awareness conference on the Minicourse. Of the agencies represented at this conference, six school districts, the SEA, and three universities borrowed Minicourse materials from NCBOCES to use during the year. In addition, several of the school districts have since purchased their own courses. NCBOCES also led a successful crusade to acquire state approval of Minicourses for teacher recertification credit. Other similar efforts have been conducted by intermediate agencies in Iowa, Texas, and California.

b) Since 1970, four R&D agencies have worked together in a cooperative network, or consortium, to increase cost effectiveness in the dissemination of R & D products. The cooperative network has exchanged copies of audiovisual and print materials and sample products for display at each institution. Member organizations provide joint product presentations at conventions and conferences; to cut travel costs, staffs of each organization are trained to aid users in their area in the installation of products developed by any one of the four consortium members. An analysis of the consortium's presentations at three conventions during the 1972-73 fiscal year indicates that 172 respondents returned questionnaires and that 50 percent planned to contact one of the agencies in the future. This means that an average of 29 people per convention may have been interested in consortium materials--hardly an impressive number of contacts considering the expenses involved in staff members traveling to each of the meetings.

c) Other awareness campaigns were also conducted by the Laboratory during 1972 and early 1973: for example, Minicourses were publicized in 10,000 brochures explaining the function of Laboratory divisions and products. Return interest was about 500.

SALES FIGURES

According to data available to the Laboratory from the publisher, the following numbers of Minicourses were sold between 1970 and 1973. These are shown on Table 1 on the following page. The gross sales receipts for the courses and handbooks exceeded $900,000.

TABLE 1
MINICOURSE SALES AND RENTALS

MINICOURSE NUMBER	1970	1971	1972	1973 (July)	TOTAL
I - Sales	69	84	63	43	259
Rentals	48	57	18	22	145
II - Sales		3	51	26	80
Rentals			12	9	21
V - Sales		54	62	21	137
Rentals		34	23	17	74
VIII- Sales		2	86	39	127
Rentals		2	36	18	56
IX - Sales			64	39	103
Rentals			13	13	26
XVIII- Sales				8	8
Rentals				0	0
TOTAL- Sales	69	143	326	176	714
Rentals	48	93	102	79	322

The target users for six out of the seven available Minicourses are elementary school teachers, but there is no way of knowing how many teachers have used Minicourses. We can only examine success in reaching institutional purchasers, since the cost and organizational requirements of using a Minicourse take the decision for purchase and implementation out of the individual teacher's hands. What are the institutions that provide training for practicing teachers? There are three major classifications: universities and colleges, intermediate service agencies and county offices, and school districts.

Minicourses require considerable adaptation for college use, although the developers indicate that they hope to enter this market at some time. Nationwide, an estimated 400[5] service agencies and county educational offices provide inservice training, but funding problems make this rapidly changing market difficult and expensive to enter or maintain. The Laboratory has targeted its efforts to the final audience, school districts.

There are approximately 16,515 operating school districts in the nation[6], but this large number is an unrealistic target from a marketing point of view. It is possible to achieve a manageable total by taking into account the fact that 75 percent of the student population is included in only 3,126,[7] or 19 percent of the school districts. This is not to say that the remaining 25 percent of the student population would not benefit from their teachers taking a Minicourse. The point is that given the constraints of dollars, time, and staff expertise, it is necessary to allocate resources carefully and to aim for the largest possible audience.

For practical purposes the primary market can be divided into two segments: the 183 large city school systems with over 25,000[8] enrollment; and the districts from 3,000 to 25,000, which are generally found in the suburbs or smaller cities surrounding the large metropolitan districts. It has been the feeling of the Laboratory staff that different budget constraints, bureaucratic structures, scheduling and priority problems, and other factors combine to make these two types of districts require different marketing approaches.

Our staff located 465 purchasers through the year 1972, to determine what types of school districts were purchasing courses. Exami-

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[5]Office of Education, USDHEW. Directory of Educational Information Centers, 1969, p. iii.

[6]National Center for Educational Statistics, Education Directory, 1972-73 Public School Systems, Table 1.

[7]Renetzky, A., & Greene, J.S. (Eds) Standard Education Almanac 1971. Los Angeles: Academic Media, 1971, Table 52. Figures for 1966-67. The 3,126 districts are those over 3,000 ADA.

[8]National Center for Educational Statistics, op.cit..

nation showed that 35 of the 183 largest school districts (19 percent) had purchased one or more Minicourses, and 63 of the remaining 2,943 school districts over 3,000 average daily attendance (two percent) had purchased one or more Minicourses. Considering that there have been 251 more sales since then, one can project a 55 percent increase in sales to each of these two target audiences. This means that perhaps 54 of the largest districts (30 percent) have been reached, as well as 98 of the 2,943 medium-sized districts (three percent). Overall, five percent of the basic target audience of 3,126 school districts has been reached.

The remainder of the 463 sales for which the Laboratory has detailed information went to: 16 districts under 3,000; 54 universities and colleges; 21 service centers and county offices; and 27 others. And 99 of the subjects purchased more than one course or more than one copy of a course.

DISCUSSION

Product Design

The sales record for Minicourses is impressive considering that the product seems to be more difficult to sell to schools than a traditional, less costly one might be. The creators of Minicourses chose to produce a self-contained multimedia package including high quality films and dependent on expensive VTR equipment for its use. One developer, noting that potential users are sometimes critical of the cost of the courses, equipment, and release time for teachers, remarked that if they had considered the needs of disseminators, and ultimately of users, they might have come up with a less expensive form for the product. Another developer, critical of this argument, points out that when expenses are divided among all teachers who use the product, it is inexpensive. Still, the initial impression of potential purchasers is that the product is costly, and distributors are put in the position of justifying the expenditure to those who stay around to listen.

Other barriers to adoption are more difficult to counter. Those potential adopters who reject a behavioristic approach will probably never bend their philosophy enough to purchase Minicourses. Others criticize the quality of the films, especially in Minicourse 1. The developers admit that the quality is not consistent; one film has won an award, while others are of lesser quality. Some potential users fault the research findings because the testing usually involved videotaping; they say that most teachers try to perform especially well when they know they are being taped.

On the other hand, many satisfied users like the courses because they involve videotaping and are a departure from traditional practice. Teachers report that they learn more from Minicourses than from workshops or lecture courses. Viewing model teachers on films and seeing videotapes of

their own performance is a valuable and enjoyable training method, they say. Supporters are also attracted to the courses because they can be conducted in the local school, teach skills that have immediate applicability, and are not tied to any one subject area.

Since Minicourses do represent a departure from habitual school practices, developers knew the product would be more difficult to disseminate and implement than traditional materials. They felt that in order to insure widespread use, the product would have to be self-sufficient; they say that school district personnel should be able to take the Minicourses and use them without any outside assistance. However, experience has shown that the courses are used more where linking agencies or the developers assist users with implementation. In this case, it seems as if the "self-contained" package the developers designed may be strengthened when they treat it as though it were not complete.

The dependence on specialized equipment may have made Minicourses especially intriguing and innovative to developers but also threatening and complicated to some potential purchasers and users. This is not to say that the developers should have chosen another product form, but that with the form they selected, special efforts at dissemination and implementation were necessary.

Field-Test Strategy

The Laboratory developed and used a rigorous field-test strategy, but the developers fell into several common pitfalls. Subjects were not chosen by a systematic sampling procedure that would represent the product's target market; many were probably already predisposed to use the product. Also, data were collected on the subjects' reactions to Minicourses after they had completed the training. This information does not show how potential purchasers react to the product before having any experience with it.

Perhaps the most serious problem with the field tests was that they revolved around introducing potential users, not potential purchasers, to the product. Minicourse field tests did not concentrate on reaching administrators, and since their reactions were not sought in a structured fashion, the training packages were not designed to meet their perceived needs. Yet it is administrators who must make the final decisions to adopt or reject Minicourses. Similarly the "facilitators" were not studied as carefully as they might have been. From the point of view of the person who must locate a microteaching room, schedule teachers, and find the equipment, the Minicourse often creates problems rather than solving them. The development and testing process did not take these obstacles into full consideration.

Contract with a Major Publisher

Laboratory staff members admit that they planned to turn the dissemination over to Macmillan and wash their hands of each Minicourse. In the

beginning both the company and the Laboratory thought that sales would be no problem since the product had proven its worth during a stringent research and development cycle. Soon, both developers and Macmillan realized that Minicourses were difficult to market. The fact that they had come from a laboratory did not automatically create a huge user demand for the courses although several purchasers were impressed by their research and development history.

The union of the R&D agency with a publisher was viewed by some as a marriage of necessity. Despite the animosities that obviously exist, people at each agency say they benefit from the capabilities of the other. However, Laboratory employees are apprehensive about the ability of a commercial sales force to market Minicourses. They point out that the salesmen are used to selling textbooks; Minicourses were the first nonprint products that the company has attempted to sell. On the other hand, a staff member at the publisher notes that the Laboratory does not respect the experience and expertise of the sales force. She emphasizes that the salesmen are in contact with school administrators and teachers daily, and that they are more aware of what actually goes on in schools than many developers are.

Both the Laboratory and the publisher know that educators need positive reinforcement before they will implement an innovation. Both organizations attempt to provide this support, and both agree that the Laboratory's demonstration sites had a positive effect on sales.

Demonstration Project

As in the case of other products, simple awareness advertising efforts are necessary; before someone will buy a product he must know that it exists. Those involved in the dissemination of Minicourses unanimously agree, however, that awareness efforts are not enough to lead to the sale of the courses. More information is necessary.

Laboratory staff members do not feel that the floating demonstration sites were an effective way to promote use of Minicourses. By the time teachers discovered that the demonstration was in town, many weeks had passed and the project was ready to move to a new site. Because the tight schedule had been set up months in advance, it was impossible to remain in a community longer than six weeks. However, long term demonstration sites, where potential users could talk with colleagues who had used the product, were effective in creating additional markets for the courses. For the month of May 1972, 67 percent of Minicourse customers were in geographic areas serviced by the demonstration project. For June, the figure climbed to 88 percent, and July sales figures indicate that 80 percent were in demonstration areas.

Although the demonstration project was one of the most successful dissemination efforts surveyed by our staff, Laboratory personnel admit that its effectiveness could have been greater if local demonstration site personnel had been given systematic training in dissemination. Realizing this deficiency early, the Laboratory attempted to compensate for

the lack of training by circulating examples of, and reports on, diffusion techniques used at the various demonstration sites. They now stress the importance of keeping in close contact with site personnel.

Cost Effectiveness

The Laboratory has spent a total of $519,000 on the dissemination of Minicourses. The bulk of this sum, about $400,000, was spent in connection with demonstration activities, which were funded largely by NCEC (for $300,000) and also supported from within the Laboratory. (At one time the developmental programs contributed some of their resources to this work.)

Macmillan has not done an analysis of their expenses for Minicourse dissemination.

Based on the figures above, each of the 714 Minicourses sold represents a dissemination investment of $727 on the part of the Laboratory. This figure is certain to decrease as time passes, since dissemination activities have been cut back drastically, while more sales are expected. It is felt that the impact of the demonstration project will be seen in sales for some time to come, since the decision-making cycle in schools is traditionally slow and seasonal.

Implementation Support

The Minicourse dissemination strategy led to a respectable number of sales. It is hoped that there has also been a high level of implementation. However, the Laboratory has done little, aside from its cooperation with linking agencies, to insure that its courses are being used. A former Laboratory employee mentioned one large school district where dozens of Minicourses were sitting on the shelves; the school district was in the midst of decentralization; no one knew whose job Minicourse coordination was; and the materials were not used. She emphasizes that implementation assistance is essential in cases like this one.

Like many other developers, those at the Far West Laboratory felt that they developed a completely operational package with what a brochure proclaims are "carefully tested printed materials that answer every question and anticipate every need." Minicourses can indeed be implemented without assistance from developers and disseminators. However, in those schools where outside assistance is given, and where users are assisted in implementation, additional Minicourses are purchased and adopted. We return to the question of whether an educational innovation like Minicourses can or should be billed as a complete operational package.

MAN: A COURSE OF STUDY

PRODUCT SUMMARY

Product name: Man: A Course of Study

Developer: Education Development Center (EDC), Cambridge, Massachusetts, under grants from the National Science Foundation

Distributor: Curriculum Development Associates (CDA), Washington, D.C.

Description: This social science course focuses on three questions:

What is human about human beings?
How did we get that way?
How can we be made more so?

The multimedia student materials have been created from ethnographic film studies and field research. Using these sources, classroom teachers and students explore the roots of man's social behavior through the study of selected animal groups and an intensive examination of the Netsilik Eskimo society. The curriculum is designed so that organizing ideas are introduced early and recur periodically. Social science skills are emphasized. Students simulate the anthropologist's methods of observation, data collection, hypothesizing, problem finding, and problem solving.

Although the developers created this curriculum for 10- to 12-year olds, experience shows that Man: A Course of Study is a nongraded curriculum which is being implemented in elementary, secondary, and adult education programs.

Cost: Basic Materials: A complete set of Super 8 mm films and five classroom sets of printed material (booklets, games, photo-murals, records, filmstrips, and teacher guides) costs $3,200. Thus the start-up cost for 150 pupils would be $21.33 per pupil. However, since all materials are durable, maintenance costs are minimal, and so over five years the per-pupil expense is $4.27 per year.

Staff Development: A qualification for purchase is that the prospective buyer agree to provide necessary inservice training. The publisher screens all orders to verify that the purchaser has complied with teacher education requirements. A professional services agreement, available from CDA, enables the publisher and a cadre of trained consultants (the "International Faculty") to design a training program to fit the needs of the school(s) involved. Where large installations occur (approximately 35 teachers or more), the publisher absorbs some of the cost of professional services. Groups can make arrangements with qualified educational institutions to implement the training, or they can contract with CDA for the services of a trained consultant.

Evaluation: The developers field tested MAN with 3,000 students in 123 classrooms (grades 4, 5, and 6). Pre- and posttests showed that students, regardless of previous academic achievement, acquire knowledge, thinking skills, and increasingly independent study habits. Student interviews and classroom checklists indicated positive growth in self-image among students and open, more child-centered teaching styles among teachers. According to the publisher, educators throughout the world have continued research concerning the effects of MAN on both students and teachers, and have found its use to be positively linked with increase in reading and vocabulary scores, decreased student ethnocentrism, development of thinking skills, and increased self-awareness.

Current status: The complete program, including inservice training, is available from CDA.

Innovative effects: This curriculum does not fit into a traditional subject area for schools, since it contains material from anthropology, natural science, and other disciplines. Some of the material on evolution and reproduction proves controversial in some communities. Teaching with MAN can demand an unusual amount of flexibility. The initial cost of this multimedia curriculum appears high, especially since inservice training is required. However, several potential impediments to adoption have been addressed by the publisher; the training covers both the unfamiliar content and the new methods, and the price can be lowered through deferred payment for the materials and various special arrangements for the training. The publisher has held the cost constant for three years and has shown users that the cost should not be compared with that of textbooks.

Synopsis of diffusion: The earliest diffusion efforts met with little success. Publishers were unwilling to take on a controversial multimedia program; workshops for teachers elicited enthusiasm about the course but resulted in pilot efforts, not adoptions.

When CDA took on MAN, its staff had no intention of applying conventional sales techniques to the diffusion of such a complex, controversial program. Instead, they have emphasized professional staff development in the training that is a prerequisite to implementing the course. Teachers learn not just content and teaching methods, but also curriculum development, evaluation, and dissemination. They become colleagues of the developers and of the "International Faculty," the group of university professors, museum anthropologists, curriculum specialists, and others, who conduct the workshops and engage in their own dissemination efforts for MAN. The prestige of this group is thought to be an important element in the curriculum's recent diffusion success.

CDA concentrates much of its effort on key decision makers in schools. Evaluations of the early dissemination showed that it was school administrators with a role in staff development who were able to bring about

use of MAN once they were convinced of its worth, and so CDA now holds "awareness-toward-decision-making" workshops for these administrators (followed up by similar workshops for teachers). Another set of workshops is the "three-day institutes" designed to equip teacher educators to respond to the training needs of purchasers of the course while also disseminating information about it. Workshops are also held in conjunction with the national conferences of various educational associations. The focus in all cases is on people who are in a position to take action for the program's implementation.

The publisher's dissemination activities are evaluated cooperatively by the publisher and the developer, EDC, and the resulting data shape subsequent activities. Several barriers to adoption have been identified in this way, and new tactics have been devised to overcome the barriers. For example, the materials' high cost was alleviated by means of a lease/purchase option that allows purchase with three annual payments. Problems of MAN's discontinuity with other curricula are being met by working with all the teachers in a school and looking at the total curriculum rather than grade-by-grade adoption.

THE PRODUCT

Man: A course of Study (MAN) is a complete, ungraded, upper elementary and middle schools program designed originally for use in grades 5 and 6. The content of the course was outlined by Jerome Bruner, consulting scholar for the development effort:

> The content of the course is man: his nature as a species, the forces that shaped and continue to shape his humanity. Three questions recur throughout:
>
> - What is human about human beings?
> - How did they get that way?
> - How can they be made more so?
>
> We seek exercises and materials through which our pupils can learn wherein man is distinctive in his adaptation to the world, and wherein there is discernible continuity between him and his animal forbears.[1]

To understand man's humanness, the course looks beyond man to other animals, particularly those whose lives illuminate special features of our own. A young salmon, for example, manages to swim, eat, protect itself, and find its birthplace five years later, all without parental guidance. Why are human babies so dependent on their parents?

A major segment of Man: A Course of Study is devoted to an examination of the Netsilik Eskimo's traditional culture. Subsistence activities, child-rearing practices, the structure of a family, the cooperative activities of a society (all recurring concepts studied in conjunction with salmon, herring gull, and baboons) are studied in an attempt to discover the distinctiveness of man. Through a study of the Netsilik and reflection on American society, children come to understand that what people regard as acceptable behavior is a product of culture.

Course materials are designed and sequenced so that children revisit the organizing ideas that are introduced early in the course. This format gives teachers and students opportunities to consider concepts in greater depth and with deeper insight. This aspect of the curriculum design was strongly influenced by Bruner's emphasis on the power of organizing ideas to shape and stimulate thought.

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[1] Bruner, J., Toward a Theory of Instruction. Cambridge, Massachusetts: The Belknap Press, 1966, p. 74.

> The curriculum should be determined by the most fundamental understanding that can be achieved of the underlying principles that give structure to that subject. The best way to create interest in the subject is to render it worth knowing, which means to make the knowledge gained usable in one's thinking beyond the situation in which the learning has occurred.[2]

Social science skills are emphasized throughout the course. Films created for the course are the primary sources of knowledge and experience. The developers added still photographs, field notes, and ethnographic journals to help present children with data that previously had been the exclusive province of social science graduate students. Children learn the social scientist's methods of observation, data collecting, hypothesizing, and problem solving. This is not to suggest that the materials emphasize the cognitive at the expense of the affective domain. Stories, poems, and illustrations were selected with an eye for drama, pathos, humor, and empathy with other cultures. Activities encourage children to freely express their feelings and create stories and pictures that reflect their thoughts.

The teaching/learning strategies in MAN are derived from Bruner's assumption that learning is in good measure a social process by which children and teachers can articulate and share ideas with one another. The course is structured around a community of learning, rather than around such status-defined roles as student, teacher, and authority. Small group work is emphasized and the teacher is encouraged to experiment with methods which will enhance discovery and humanness in the learning process.

The complete course contains 16 color films and 23 booklets which provide data, explore concepts (e.g., natural selection), or contain Netsilik realia (e.g., songs, stories, poems). In addition there are simulations, maps, filmstrips, and records that permit children to work individually or in small groups with a minimum of teacher direction.

MAN is an expensive product, especially in terms of start-up cost (although there are minimal replacement costs). It is also a controversial one dealing with subjects such as reproduction and cultural relativism, which may be unwelcome in some communities.

Because the course content is drawn from sophisticated areas in behavioral science and because the materials require that the instructor shift from the traditional didactic role to a more open, interpersonal teaching mode, the publisher stipulates that teacher education is a prerequisite for implementing the course. To aid in teacher education, the

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[2]Bruner, J., Man: A Course of Study, Occasional Paper No. 3

developers wrote nine books containing background information, bibliographies, suggested lesson plans, strategies for evaluation, and a series of inservice seminars for teachers. These teacher books are an integral part of the resources provided with pupil classroom materials.

DEVELOPMENT

Man: A Course of Study grew out of a June, 1962 conference of 40 scholars and teachers who met at Endicott House in Dedham, Massachusetts to consider the need and possibility for curriculum reform in elementary schools generally and in social studies specifically. Those in attendance represented a variety of disciplines including anthropology, art, the classics, economics, education, geography, history, law, philosophy, political science, and psychology.

The result of the Endicott conference was the establishment of a project team to develop what has become Man: A Course of Study. Jerome Bruner, a leader in American psychology and director of the Center for Cognitive Studies at Harvard University, became the director of the project. From the outset, Bruner wanted to enlist the best talent and techniques available in the world. Later he was to state that "no person, whether scholar, artist, film maker, or teacher--nobody we asked for help refused us."

Actual development began at Education Development Center (EDC) in 1963. Cross-disciplinary teams drawn from the areas represented at the founding meeting traveled to the Canadian Artic to film and record Eskimo tradition, oral legends, and myths. Others set off for Africa to study and film the baboon troops. At the peak of development, over 35 professional staff members participated in this team effort. Simultaneous with this extensive field effort, teams at EDC in Massachusetts were writing, testing, and revising the student and teacher materials, including concept booklets on such topics as natural selection and adaptation. Development continued for six years and followed a research and development cycle of testing and revision.

Development of Man: A Course of Study was funded by the National Science Foundation, which continues to support the implementation efforts. Costs to date are estimated at over four million dollars, including a substantial investment in implementation activities such as workshops and institutes. Development grants, including money for a two-year revolving fund diffusion effort, were channeled through EDC development staff.

Field Testing

Initial attempts were made to test Man: A course of Study for specific inputs and outcomes, but the developers believed that in this dissected context the organizing idea, "What makes man human?" seemed to lose its global meaning and power. For this reason, EDC sought more comprehensive, reflective means of assessment. They used interviews to understand children's

view of the course, classroom environment checklists to understand how individuals and groups worked with the materials, and pre- and posttests to judge the consistency with which the course conveyed knowledge to different groups of students. Over 3,000 students from 123 classrooms in 16 school districts (urban and suburban) were involved in the test period that spanned two school years, 1967-68 and 1968-69.

Research findings show that children accumulated information and also developed methods of investigating, problem solving, and working with evidence. Acquisition and retention of knowledge were achieved by all students, not only those with previous academic success. Several concepts (e.g., natural selection and innate/learned behavior) were found to be difficult for children to understand and, consequently, were either modified or made optional. The wide range of course materials seemed to change students' views of traditional data sources, de-emphasizing the role of the book. Students attributed success and enjoyment in learning to the visual materials in MAN, particularly the films. As one student put it, "I like to see what I'm talking about." Through discussion and small group work, children exchanged views, enlarging the range of one another's thinking. The evaluators noted increased independent, self-motivated learning coupled with a tendency to work in small groups without the teacher's direction.

Developers state that the nature of the curriculum also brought about changes in teaching behavior. One important shift was toward a more open teaching style, attributable to the methods and materials of the course. Teachers moved in the direction of an open, student-centered classroom, and away from domination of discussions and student work.

DIFFUSION

The diffusion effort for Man: A Course of Study has three distinguishing features: the National Science Foundation has supported dissemination activities at a variety of levels; the research and development process which created the curriculum has been continually employed to study the effects of dissemination efforts; and staff development has been a mandatory feature of implementation efforts.

Diffusion of Man: A Course of Study has been heavily supported by the National Science Foundation. NSF has sponsored institutes and other awareness and training efforts both before and after commercial publication. Before Curriculum Development Associates (CDA) was selected to publish the program, NSF set up a two-year revolving fund arrangement with the developer, EDC, to allow production of an inventory of course materials and to conduct dissemination activities. In 1970, CDA began developing its own diffusion strategy, closely tied to intensive staff development for teachers and teacher educators. There is still close cooperation among EDC, NSF, and CDA, who share responsibility for institutes and other training or dissemination efforts.

In 1968, when EDC was in the final stages of pilot testing the curriculum, the National Science Foundation offered Man: A Course of Study to the publishing industry as a first step in the selection of a publisher and distributor. Initial interest from publishers was high, but none of the 40 represented at the presentation subsequently proposed to distribute the program. According to NSF, two factors are responsible for this rejection. MAN is unconventional. MAN is controversial. In the 1960s, even more than today, the profits of the educational publishing industry were tied to the textbook. MAN has no text, but instead is a collection of soft-cover booklets, games, data cards, filmstrips, photomurals, and films. In the eyes of the publishers, the packaging and distribution problems and the uncertain profitability of the complex multimedia market overshadowed the quality of the curriculum. They also felt that the price of the course would be out of reach of the average elementary social studies budget. Further, the curriculum explores issues and ideas such as reproduction, evolution, and cultural relativism, which have rarely been discussed in schools with 10- to 12-year-olds.

Because a long-standing policy which entrusted all NSF-supported printed material to the public domain seemed to be discouraging to educational publishers, NSF formulated a new policy in the 1960s. This policy, which is still in effect, offers publishers a five-year period of exclusivity during which time royalties are paid to the federal government. But not even this policy encouraged the publishers who were skeptical about marketing Man: A Course of Study.

At this point it became clear that MAN would not find its way into the classrooms via existing commercial avenues, and EDC and NSF turned their attention to other strategies.

The Developer as Disseminator

After deliberating, NSF decided in 1969 to bend its policy and provide EDC with a revolving fund to be spent on the printing, production, and dissemination of 1000 classroom sets of MAN materials. NSF specified that the $270,000 fund would exist for two years, while EDC was to continue its search for a publisher. During the revolving fund phase, EDC created an inventory of MAN materials and sold approximately $150,000 worth of stock. Once a publisher was found, this firm purchased the remaining inventory, thus making it possible for NSF to fully recover its $270,000 Revolving Fund investment.

From the beginning, EDC, with NSF support, tied the dissemination of MAN to a program of teacher institutes. This program was a natural outgrowth of the NSF institutes in curriculum dissemination and implementation. From 1967 to 1969, NSF gave EDC $117,500 to train people who would recruit field-test sites and lead the dissemination for the program.

Between 1969 and 1971 NSF funded five Regional Centers, located in colleges or universities, to disseminate information about the course and to train teachers and teacher leaders to implement it. During that three-year period, the five centers collectively used $1,256,400 to train 700 teachers to use MAN.

Although commitments were made by school districts prior to their teachers' involvement, only about one-third of the participants in the center-sponsored institutes ever taught the course to students, and fewer than one-third ever trained more than one or two other teachers to use it. EDC's research indicates that the institute effort succeeded in training teachers to teach MAN to students but was less successful in training them to disseminate and implement the course.

A research and development laboratory (ERIE), whose mission was dissemination of process-facilitated curricula, was tied into the network of regional centers and was charged with involving colleges and universities in preservice and inservice training for MAN. As a result of a three-year effort, thirteen colleges and universities in ERIE's territory taught teachers to use the curriculum.

Selection of a Publisher

A second major attempt to find a publisher for MAN was undertaken in 1970, and EDC received interested responses from four companies. Curriculum Development Associates, Inc. (CDA), a new publishing company, was selected because of its commitment to the coupling of staff development and curriculum development. According to its staff, CDA believes in professionalism (curriculum and teacher development) first and commercialism (materials) second. To give life to this philosophy, the company offers its services under contract to school system curriculum development staffs and university departments of education, with a view toward combining staff and curriculum development with the introduction of new learning materials. Preservice or inservice teacher training is a mandatory prerequisite for the use of any materials developed, sponsored, or endorsed by CDA. In contrast to most companies in the education field, CDA offers consultation, advice, teacher development, and a variety of flexible materials; efforts are made to apply the lessons of one school system's experience with innovation to the needs in another system.

In 1970, EDC and CDA formalized their relationship by signing a publishing agreement and a professional services contract. Under the publishing agreement, CDA undertook to disseminate the curriculum and provide teacher education to any school or school system contemplating the use of the program. Under the parallel professional services contract, CDA pledged to give EDC (over and above the usual royalties to the National Science Foundation and other rights holders) a substantial portion of the proceeds from the sale of the program. These funds are used by EDC for a continuing review of the program, with particular emphasis on evaluation and new developments. In addition to providing insights into the use of the program and problems associated with its introduction, this arrangement also provides for what may be a unique relationship between developer

and publisher. Representatives of EDC and CDA meet periodically to explore mutual problems and to review proposals for the evaluation of various elements of the program.

CDA took a fresh look at MAN and saw it not so much as a curriculum package, but as an open-ended curriculum that could contribute to staff development because of its flexibility in the hands of a skilled teacher. Man: A Course of Study, when viewed as an "unfinished curriculum," empowers teachers to shape the learning environment by adding new materials, altering the sequences to fit student needs, and encouraging students to engage in independent investigations. As CDA personnel put it, they "unpackaged the package." Their staff development program trains teachers not only to understand the course concepts and to use the multimedia materials, but also to invent and test their own materials and strategies. For example, the schools in Santa Paula, California produced films on the culture of the Mexican American; a class in Australia studied the changing life style of the Aborigines; and fifth graders in Minnesota studied social organization of their hamster colony.

CDA is committed to in-depth dissemination--preferably in a two-day workshop that gives participants both a broad view of the curriculum and active experience with the materials and teaching/learning strategies. CDA staff refuse invitations to "show-and tell" MAN because they believe such activity is detrimental to understanding this complex curriculum.

Besides creating the concept of the unfinished curriculum, CDA has made a few format changes in the course. With the agreement of the developer, CDA made several supplemental films optional because of high royalties that had to be paid to the films' publishers. CDA modified EDC's practice of selling sample kits of all printed course materials because it was learned that people were trying to teach the course from the kits--no training, no films, no games, just booklets and lesson plans. CDA created a special $5.00 sample kit (containing one teacher guide and seven student booklets) and reserves the larger, more complete kit for workshops in curriculum and staff development. CDA made a major effort to promote the use of Super 8 mm film cartridges as an alternative to 16 mm film. Super 8 is less expensive than 16 mm (although not all schools have the appropriate projector, which itself is a $400 item). Because the cartridges are so easy to use, children can view films independently.

Targeting Dissemination to Decision Makers

Immediately after signing contracts with EDC, CDA set out to develop a dissemination strategy based on data EDC had generated in its early outreach efforts. This exploration began with the question, "What would happen if dissemination efforts were targeted not to teachers, but to leadership people with a role in staff development?" This question was tested by a 1971 retreat of Montgomery County supervisors and administrators (all with curriculum and social science backgrounds). In 1971

MAN was in use in only ten classrooms in Montgomery County, a district of over 125,000 students, even though many of the county's teachers had previously participated in EDC and NSF institutes. By 1973, after supervisors and administrators had received 25 hours of exposure to course content and strategies as well as guidelines for implementation and evaluation, 45 schools and over 100 classrooms were using the course. Targeting dissemination to decision makers involved in staff development seemed to be a productive strategy for increasing implementation and, consequently, became a key characteristic of CDA's future dissemination activities.

The First Three-Day Institutes and Their Impact

CDA will not fill an order unless the purchaser presents either proof that teachers have been trained to teach MAN or a plan for inservice training. In light of this commitment to staff development and the success of the Montgomery County Retreat, CDA targeted a substantial amount of its early dissemination activities to teacher educators and curriculum specialists. During the spring and summer of 1971, CDA sponsored 11 three-day institutes in an effort to create a national network of teacher educators who would train MAN teachers and assist in professional dissemination.

An evaluation of this dissemination strategy has been conducted by an EDC research team supported with funds from CDA's professional services contract. (This was the first project undertaken as an outgrowth of the CDA/EDC professional services agreement.) From October 1971 to April 1972, the EDC staff collected data through interviews (onsite and by telephone), observations, and open-ended questionnaires. Seventy-five percent of the institute participants responded, and 60 percent of them reported that they were either teaching the course or disseminating information about it. The study showed that more was needed for adoption than a match between the course and the expressed goals of the potential user. Adoption occurred when various factors came together: goals, timing, social/political/organizational conditions, resources, and the presence of a supportive person who guided and nurtured implementation. EDC collected its evaluation data on the three-day institutes in 1971-72; however, CDA staff point out that even now the impact of these institutes has not been completely realized. Adoption and implementation of MAN can take as little as one week, more often a year, and surprisingly as long as three years.

Data then available were analyzed for three separate groups of participants representing school systems, universities, and state or regional agencies. Of all the institute participants, the school system people had the highest implementation record. Little implementation could be directly credited to the work of the university-based institute participants, despite their contacts with schools, teachers, and administrators. Instead, these people seemed to have assumed support roles in dissemination and staff development. A third group of participants, those representing state or regional agencies, had done little work with Man: A Course of Study, despite the fact that as a group they had the widest contacts with schools and school systems.

Why did some institute participants fail to respond as CDA had hoped? The university people most often cited their educational role as the

explanation. They didn't teach a course where MAN could fit, or they felt that their role precluded endorsing any one educational product. Participants from state and federal agencies also cited the limitations of their roles, indicating that as consultants they could only respond to requests for help from school districts. Some state and federal agency people said they would be reluctant to recommend the course because of its high cost and the risk of upsetting conservative community groups. Both the university and agency representatives mentioned the price of the materials.

Those school system participants who had not implemented MAN listed several reasons: high cost, continuity (what comes the year before and the year after?), state adoption restrictions, fear of community reaction, and time-consuming, costly inservice requirements.

In response to these perceived problems, CDA has taken a number of steps. Because of the concern about the high cost of the curriculum, a lease/purchase option was instituted, allowing users three annual payments to buy the course. For university faculty faced with budgeting problems, CDA has created an inexpensive ($125.00) Teacher Training Kit consisting of all components of the course except for films. For universities that desire both films and printed materials, CDA now offers a special postponed payment plan.

The problem of continuity is being approached through school-based staff development programs designed by CDA. During this training, all teachers in a school (not only those who will teach MAN) attend a workshop that focuses on understanding the curriculum design and the core concepts. This exposure is meant to give teachers enough course experience to be able to discuss problems of articulation and to begin developing curricula that can lead up to or expand upon Man: A Course of Study.

CDA is also exploring the feasibility of submitting MAN for adoption in states with flexible adoption laws. For example, California has a new instructional materials law which encourages selection of multimedia programs and provides for listing up to 15 alternative books, sets, or systems per grade level. However, the cost of providing sample materials to evaluators (in excess of $60,000 for MAN) may be prohibitive.

The problem of costly inservice is being solved in a number of ways. First, CDA automatically provides 30 hours of inservice teacher training without cost when large installations (e.g., Chicago Public Schools, Area C) take place. Second, schools, districts, colleges, and other institutions such as museums or zoos, are finding diverse ways of providing staff development support. Universities, responding to the enrollment crunch, have developed a number of courses for MAN teachers. CDA staff note that some of these colleges and universities are the same ones that were hesitant to endorse a commercial product several years ago.

The International Faculty

The three-day institute model was of central importance in the creation of the "International Faculty." During these conferences university professors, training consultants, social studies specialists, and curricu-

lum directors learned enough about the curriculum to make its dissemination one of their own professional objectives. Today CDA staff believe this International Faculty is the most critical ingredient in the dissemination of MAN. Not only do these faculty members, whose roles range from museum anthropologist to college professor to fifth-grade teacher, continue their own professional efforts to disseminate, implement, or teach the curriculum; they also join forces to give workshops for NSF and CDA at national conferences, regional meetings, and summer institutes. The company believes that the prestige of this cross-disciplinary body is a crucial ingredient in disseminating the program.

Members have an obvious financial incentive, since they receive consultant fees as well as expenses. According to CDA, the faculty is also motivated by the professional prestige that comes from affiliation with a multimedia curriculum created by a well-known research and development center and by the excitement of the educational change that occurs when MAN is combined with a curriculum-based staff development program.

NSF/ASCD/CDA Institutes for Decision Makers

For two years (1972-73 and 1973-74), NSF has supported a series of three-day leadership conferences for key decision makers and teacher educators, held in cooperation with national education associations and their annual conventions. Each cooperating professional group supports the effort, notifying its membership of leadership conference offerings for the year. EDC supports these conferences by providing consultants from the EDC Evaluation Team to join the faculty. CDA assumes responsibility for coordinating and staffing the conferences, selecting the staff from the International Faculty. The Association for Supervision and Curriculum Development (ASCD) has been the national organization funded to coordinate all conferences.

The first two days of the conference deal exclusively with an analysis of the curriculum design of Man: A Course of Study; the third day includes other NSF curriculum projects. Faculty members then discuss a variety of ways of implementing innovative curricula.

In addition to funding these NSF/ASCD/CDA Institutes with $69,000 between 1972 and 1974, the National Science Foundation supports a variety of other dissemination models including institutes for high school teachers, administrators, and social science coordinators as well as for urban school decision makers. NSF has also funded college educators to conduct summer institutes for decision makers.

International Diffusion

In summer, 1971, the Center for Innovations and Research in Education (CIRE) of the Organization for Economic and Cultural Development (OECD) and the Volkswagen Foundation cosponsored an international seminar on curriculum development and training. CDA was invited to present MAN, the only American curriculum introduced at the conference.

As a result of this meeting, educators from Great Britain became interested in experimenting with English application of the curriculum and related staff development. In 1973, MAN was in use in four local education authorities in Great Britain. The first adaptations of Man:

A Course of Study have taken place in English-speaking countries (Canada, Australia, and England), and Germany has proposed a foreign language adaptation of the curriculum. Recognizing that adaptation will involve more than mere translation, CDA and a group of German scholars have begun a systematic look at teacher training and the problems of cross-cultural curriculum transfer. CDA has insisted from the beginning that any cross-national work on this curriculum be based on a research effort to document adaptation as it relates to language, values, and changes in teaching behavior and classroom environments.

Future Plans and Concerns

NSF is still very much in the picture. Because many scholars and teachers have indicated that Man: A Course of Study is a significant piece of work, NSF is determined that "it ought to see daylight." In 1974, NSF will once again fund summer institutes dealing with the implementation of MAN. In addition, the Foundation recently funded an EDC proposal for $100,000 to further develop the curriculum (updating the Netsilik materials in light of the recent impact of technology on the culture) and to assess barriers to implementation. EDC and CDA will cooperatively hold a series of urban conferences on the special problems that city districts face in implementing Man: A Course of Study.

Urban implementation is a current focus for CDA; staff members are revisiting cities that began "pilot studies" of MAN several years ago without using the curriculum widely. In some instances, CDA is finding the curriculum locked in an experimental school and bearing the label: for innovative environments only. In other cases, all it takes is third-party intervention from CDA to rejuvenate interest in MAN. In cities where MAN is not in use, notably New York City and San Francisco, CDA is studying the history of decentralization and the impact it has had on decision making.

A second current focus for CDA is school-based staff development provided through a professional services agreement. In such a program an entire staff, not just those who will teach MAN, looks at the curriculum in terms of what it says about content and pedagogy in social science education. This approach can both alleviate the problem of articulation and stimulate creation of new curricula. A part of the school-based staff development is training in conducting action research to document the effects of curriculum change on students and teachers.

Several questions currently plague CDA. How can quality control be maintained if there is massive diffusion of the curriculum? How can CDA continue to monitor the staff development requirement in large installations? How long will NSF continue to support dissemination and implementation? How long will the members of the International Faculty keep MAN on their agendas? Can the curriculum make a contribution beyond its original intent (e.g., promotion of the concept of cultural pluralism)? How can CDA's dissemination strategy continuously respond to research findings?

SALES FIGURES

The diversity of ways in which schools use curriculum programs complicates the development of any precise estimates of student usage for Man: A Course of Study. Nevertheless, on the basis of fairly conservative projections, it is estimated that the program is currently being used by at least 200,000 pupils in 1700 schools around the world. Since only 375 schools were using the program in 1970, this figure represents almost a five-fold increase over a three-year period.

CDA refuses to state that the market is restricted to a particular grade level, because MAN is being used in elementary, secondary, and adult education programs. Nor is the market confined to schools in the United States. If we did assume that the market consisted of pupils in 5th through 7th grades in U.S. schools (who are in fact the most common users), this would be a total of about 11,000,000,[3] and the 200,000 users would then represent almost two percent of that market. Since the publisher has set a far more ambitious goal of reaching students at many levels and in many countries, the current number of users represents a small percentage of a vast market.

DISCUSSION

Design

The developers of Man: A Course of Study were more concerned with advances in the state-of-the-art in curriculum development than with future sales volume. The development teams were composed of university professors and others whose commitment to the program was based on their excitement about their own subject areas. It can be surmised that what was important to an anthropologist on the staff, for example, was communicating anthropological principles to children, not selling a social studies program to a school. By the time marketing became an immediate concern, the course materials were in the form of a complex curriculum in an unfamiliar format, which promised great dissemination problems.

Furthermore, the subject matter was often controversial (e.g., evolution and reproduction), and it included disciplines usually studied at the college level and unfamiliar to many elementary social studies teachers. On the surface this might indicate a design flaw, at least in terms of marketing, but it was a conscious flaw. That is, the developers were undoubtedly aware that the content might impede adoption, but they were committed to the value of introducing this content and were determined to convince the schools of its benefits.

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[3] National Center for Educational Statistics, 1973. Statistics of Public Elementary and Secondary Day Schools, Fall 1972. Table 5.

Testing

Field testing of Man: A Course of Study was a continuous process during the six years of development at EDC. Pre- and posttests measured knowledge gains, interviews were used to discover both student and teacher perceptions of the course, and classroom environment checklists were used to find out how participants interacted with course materials. After each testing cycle, revisions were made in accordance with test results. In other words, a conventional research and development model was followed. It is significant that although testing was long-term and comprehensive, it was solely content-oriented. It appears that no marketing concerns were included in the evaluation.

The decision to select sites almost exclusively in the northeastern region of the country could be viewed as an impediment to diffusion. A more widespread site selection pattern might have provided more insight into possible diffusion or implementation problems, and it would almost certainly have increased word-of-mouth familiarity with the product.

Diffusion

Two distinct diffusion processes were applied to Man: A Course of Study. The first was the EDC/NSF revolving fund approach, in which NSF provided EDC with funds to produce an inventory of course materials and to carry out dissemination activities. These activities consisted primarily of institutes and workshops to train teachers in the use of MAN materials and concepts. A major focus of the effort was to insure that persons completing the course would be motivated and qualified to undertake dissemination activities themselves. This phase of MAN's diffusion continued for four years and included not only many workshops but also the involvement of Regional Centers as linking agencies to disseminate information about MAN to teachers, teacher educators, colleges, and universities. EDC's evaluation of this effort indicated that it was effective only in training potential teachers of the course but not in producing qualified disseminators.

According to CDA, the weakness of the early EDC workshops was at least partially attributable to the choice of teachers as the primary target audience. When CDA began disseminating the program in 1970, its staff decided that because teachers are not often key decision makers in adopting such a complex, controversial curriculum, it would target its efforts to teacher educators, curriculum specialists, district staff, and others. This redirection appears to have had successful results, since implementation has increased significantly under CDA's strategy.

An equally important and unique feature of the company's overall strategy is its commitment to "professionalism" as a dissemination tool. The company contends that its diverse and extensive "awareness-toward-decision-making" activities are aimed not merely at teaching users or potential users about the design and materials of the course, but are intended to help teachers develop as professional decision makers. After training, teachers will not only be more proficient in the classroom, they will also be qualified to assume responsibility for dissemination,

curriculum expansion, or even development. This goal may seem idealistic if not overwhelming, but CDA's whole approach to diffusion of Man: A Course of Study is based on the notion of staff development supported by its International Faculty of scholars.

Members of the International Faculty have the incentive of consulting fees, but CDA staff emphasize that they also gain professional prestige from their association with the course.

CDA and its consultant staff, in conjunction with EDC and NSF, have mounted a comprehensive campaign to give interested educators in-depth awareness of the content and methodology of MAN. Unlike other commercial publishers, and in line with its image of professional commitment, CDA declines to engage in what it calls "show and tell" awareness activities. Instead it organizes and provides staff for a variety of workshops and institutes for key decision makers. In a unique marriage of funding agency, developer, and publisher, NSF sponsors some of the institutes, CDA coordinates the conferences and provides staff from among the International Faculty, and EDC provides consultants from its evaluation team.

Perhaps the most interesting feature of these efforts is that CDA, through a professional services agreement with EDC, sets aside a portion of its sales income to support formal evaluation of all its dissemination activities. Evaluation results are generally favorable; where they have not been, CDA has responded with changes. For example, university staff indicated that the complete set of materials posed a budget problem, so CDA developed an inexpensive ($125) Teacher Training Kit which included all materials except films. School district staff had the same problem; since these people required films to implement the course, CDA instituted a deferred-payment, lease/purchase option. And they responded to suggested problems of articulation with staff development to help teachers begin to design their own curricula to precede and follow Man: A Course of Study. Thus it appears that with the support of NSF and EDC, CDA has been able to solve many of the diffusion problems generated by the course. Without that crucial financial and evaluative support, its efforts might not have been so successful.

Implementation

The complexity of the course materials and their unfamiliar and often controversial content combine to make teacher training the most important ingredient in successful implementation. No prospective purchaser can receive materials from CDA until he has signed a commitment for professional staff development or furnished proof that the program's users have already been trained, or will be trained locally.

The cost of the extensive 30-hour training requirement set by CDA might seem prohibitive, but CDA has been able to convince users of its necessity. This has been accomplished by stressing the professional advantages of staff development and also by arranging various ways to cut the standard consultant/release time costs. For a large installation,

CDA provides training staff from its faculty, absorbing the cost and designing the sessions to fit the school's inservice plans. For smaller groups, the publisher or district can often find an education department at a nearby college or university that will share the cost of training if some preservice participation is allowed. Now, because MAN is finding its way into the preservice curriculum, it sometimes happens that a purchaser can find a member of his own district staff who has become qualified as a teacher for the course.

INQUIRY DEVELOPMENT PROGRAM IN PHYSICAL SCIENCE (IDP)

PRODUCT SUMMARY

Product name: Inquiry Development Program in Physical Science (IDP)

Developer: Dr. J. Richard Suchman/Science Research Associates (SRA), Chicago, Illinois

Distributor: Science Research Associates

Description: An elementary science program covering such fundamental physics concepts as force, change of state, and pressure. May be used as a basic, one-year course or as a supplement to the regular science program. The program goal is to develop skills of investigative thinking. IDP is organized around a series of "discrepant events," problems which are designed to challenge students' understanding and thus stimulate the inquiry process. One such event involves a metal blade which, when heat is applied, bends upward. The students are challenged to discover why the blade bends. They participate in an inquiry session, asking questions, conducting experiments, and using reference materials to try to explain the event. A final answer, or closure, is neither required nor encouraged. The problems, or events, are presented in 25 8mm silent color film loops, a teacher's demonstration kit, and a student Idea Book.

A Teacher's Guide offers brief explanations of the physical principles related to the course and an analysis of each inquiry problem in terms of those principles. Since many elementary teachers do not normally deal with such a comprehensive range of basic physics concepts in their classrooms, it is also suggested that they review a basic physics text. Purchasers also receive a book called Developing Inquiry, which explains the philosophy and procedures of inquiry development and the ways in which the inquiry approach differs from more traditional classroom practice.

Target market: The publisher recommends IDP for grades 6 to 9, although Suchman contends it can be used successfully with students from elementary through college levels. The usual purchaser is a curriculum specialist or building principal.

Cost: In 1972, the last year IDP was actively promoted, the program cost for a class of 30 students added up to $663.30. This cost included the 25 films, the teacher's demonstration kit, 15 student experimental kits, 30 Idea Books, 5 Resource Books, a Teacher's Guide and teacher's handbook kit, one Evaluating Inquiry Handbook, and 30 Student Response Books. After the initial program cost, only Idea Books, at $ .80 ea., and the Student Response Books, at $ .62 ea., needed to be replaced for every new class. All other materials were reusable. Thus, the expense averaged out to about $8 per student over three years. The cost per student could be reduced by using the program in several classrooms each year.

Evaluation: Initial materials developed at the University of Illinois as part of the Illinois Studies in Inquiry Training were subject to extensive testing with pilot classes over a period of several years. Experimental and control groups were given pre- and posttests covering inquiry skills and content mastery. The inquiry training approach was evaluated (Suchman, 1962; Butts and Jones, 1966); both studies showed improved inquiry skills and problem-solving behavior, but found little evidence to indicate that inquiry training influenced concept development. The initial materials formed the basis for IDP but were significantly revised during final development at SRA. No further evaluation was undertaken.

Current status: The program is no longer included in the SRA catalog, although SRA will continue to fill orders for individual items or even complete programs as long as their supply lasts.

Innovative effects: The inquiry approach requires that teachers behave in new ways. They must strenuously avoid authoritarianism and become facilitators or even fellow inquirers rather than dispensers of knowledge. In practice, this means that teachers must not lecture, must tolerate some classroom disorder, and must use new methods for evaluation. The program also demands a basic knowledge of physics which may necessitate additional training for teachers. For adopting schools, it is an expensive program that may cause budgetary problems. IDP covers only one area of science and thus may have to be supplemented with additional curricula, especially in those schools where particular content coverage is required by a state or district.

Synopsis of diffusion: After initial development of the inquiry approach in a university setting, SRA became interested in packaging it as a science curriculum. Development of all new materials took place under the company's auspices, and no field testing was conducted to ascertain users' reaction.

The bulk of the marketing effort was conducted by a network of salesmen under the direction of regional managers. Sales techniques were not particularly unconventional except for the inclusion of some classroom demonstrations and workshops for teachers so as to communicate the program's approach to potential buyers. Because of the necessity for salesmen to understand the program themselves, SRA mounted one of their most extensive staff-training programs. The developer joined in this effort to explain the complex product. He also supplemented the publisher's promotional work by holding demonstrations and conducting training when invited by schools and universities.

When it became evident that the program was meeting sales resistance, SRA stepped up its efforts but still did not venture far from traditional channels. A starter set of materials was developed to allow teachers to try out the inquiry approach in their classrooms. More workshops were held, and a subscription newsletter was begun. But when sales figures still did not rise to a satisfactory level, SRA was forced to reconsider its investment; management perceived that it was engaging in an expensive effort to create a market for innovation. With some reluctance, SRA dropped the program from its catalog after six years.

The publisher, the developer, and many users agree that the lack of extensive teacher training in the inquiry approach was the most significant factor impeding adoption. Some difficulties may also have arisen because the program did not fall neatly into the traditional format for science programs. The program was marketed by means that might have succeeded for a more conventional program but were not adequate to bring about use of IDP.

THE PRODUCT

The Inquiry Development Program (IDP) grew out of the commitment of one man, Dr. J. Richard Suchman, to the inquiry learning process. Suchman believes that inquiry is not a teaching method or technique, but is in fact "the fundamental means of human learning." When he began his initial development of inquiry training in the late 1950s, he was motivated by the feeling that traditional education stifles the child's intrinsic desire to inquire, to acquire information and process it. He found that school environments generally use "ego and social needs to motivate children to conform rather than to inquire, to store facts and generalizations rather than to search and discover for themselves."

In a traditional lecture presentation, for example, a concept may be introduced simply because the teacher has chosen to teach it at that time. Often no immediate use for this concept is apparent to the student, who is instead motivated to learn merely by the desire for approval or a good grade. One way to counter this approach, according to Suchman, is to present students with an event or object that makes them curious, to build irresistible pressures in the children to find a way of assimilating the event.

In an inquiry session, the student observes a discrepant event which challenges his or her beliefs about reality. Presumably this stimulates him to find an explanation for the discrepancy by gathering data and forming theories. The inquiry teacher can then introduce conceptual organizers the student will recognize as immediately useful because they will help to close the gap between his beliefs and his observations. In this case, his desire to find more meaning in his own data and theories motivates him to learn the concept.

Based on this theory of learning, IDP was developed as an elementary science program for use either as a complete, one-year course or as a supplement to a school's regular science curriculum. The program is designed around discrepant events or problems, which present each of a puzzling, seemingly inexplicable event in a film, a teacher demonstration, or a printed picture in the students' Idea Book. The 66 problems are arranged in a recommended sequence to form a complete, one-year course. The sequence begins with relatively simple treatments of the physics concepts in the course (e.g., force, change of state, pressure) and progresses to more complex treatments. All of the major topics are covered in the first third of the course and are then reintroduced at a more complex level in the rest of the problems.

After a problem has been presented to the class, the student and teacher engage in an inquiry session to try to explain the event. The original structure of these sessions was a kind of question game in which the students could ask only data questions that could be answered

"yes" or "no." Subsequently, Suchman has revised this rigid approach, so that in workshops and training sessions teachers are encouraged to be more flexible in answering questions, as long as they do not fall back into traditional exposition. Printed program materials, however, still reflect the original restrictions on question asking.

If class questions alone do not elicit enough information to satisfactorily explain the event, the teacher encourages the students to investigate further. They use equipment from Student Experimental Kits to test the theories produced during the inquiry session. They may also refer to the Resource Book, a hardcover collection of reference material related to the physics concepts in the course. Further verbal inquiry may follow, although the program does not require that each problem be solved as it is presented. In fact, a final solution is not the program's goal. Instead, IDP attempts to develop skills of investigative thinking.

The program also includes student evaluation material, not for the purpose of grading, but rather to help the teacher observe the development of each student's inquiry strategy. After viewing each of the 25 films, students answer true-false questions in a Student Response Booklet. A teacher's handbook, called Evaluating Inquiry, explains how to interpret the students' written responses and their classroom behavior. According to Suchman, testing in IDP should help the teacher to 1) judge the student's inquiry technique and his understanding of the inquiry process; 2) size up the structure of the student's knowledge; and 3) measure the specific information acquired using IDP.

Implementation of IDP may present problems for elementary teachers in two specific areas. The inquiry philosophy itself demands significant changes in teacher attitudes and behaviors. The teacher must abandon his or her role of expositor for that of facilitator or even fellow inquirer. He must be willing to say, "I don't know" if he doesn't, and to accept the fact that there are no exclusive "right" answers. Furthermore, without right answers, conventional grading becomes at best a difficult and arbitrary process. A traditional teacher might also feel that he had relinquished much of his usual direct control over the students in his class, since the typical inquiry classroom simultaneously involves large groups, small groups, and individuals who are doing experiments, discussing problems, reviewing film loops, walking around from group to group, or reading.

The second problem encountered by IDP users is the apparent need for extensive science background to teach effectively with the program. The teacher materials published by SRA recommend that in addition to reviewing the information in Developing Inquiry and the Teacher's Guide, the beginning IDP teacher review a basic physics text. According to a curriculum specialist in one large district using the program, even this is not enough. In fact, he says his teachers all needed inservice science instruction in order to feel at all comfortable in answering

the questions posed by students about discrepant events. However, Dr. Suchman, the program's developer, contends that in depth knowledge of physics is not necessary if the teacher is committed to inquiring along with the students.

DEVELOPMENT

Suchman's work with inquiry began in 1957 at the University of Illinois, where he was a professor of elementary education. His interest was originally sparked by the potential of television to stimulate thinking and learning. At the same time he became aware of some research on question asking that showed that about 97 percent of the questions asked in the elementary school classroom are asked by the teacher. Initially his research focused on the problem of training students to become more effective question askers; later he broadened his notion of inquiry to include the whole process by which we create our own knowledge through self-generated experiences.

Initial research in inquiry training was funded by a small grant from the University of Illinois. During the first two years, Suchman decided to abandon the medium of television, primarily because of its limited flexibility. If it were broadcast into the home, no feedback to viewers was possible, while with closed-circuit educational television in the schools, the teacher could not control the timing of the broadcast or interrupt it for discussion. Instead, Suchman decided to use short films which could be presented at any time by a teacher in the classroom. Each film would show an event designed to challenge the student's beliefs about reality, thus motivating him to ask questions to try to explain the event.

Results were promising, and in 1969 Suchman received a larger grant from the U. S. Office of Education (Title IV, National Defense Education Act) to initiate the Illinois Studies in Inquiry Training. Thirty-three physical science films were developed as a result of this study, and Suchman began to test the effects of the program on sixth-grade children. Six experimental classes saw problem films and participated in inquiry sessions at least once a week. Six control classes saw the same films, but instead of conducting inquiry sessions, their teachers taught the principles illustrated in the films by traditional expository methods. Evaluation was conducted by means of pre- and posttesting. At the end of 24 weeks, there was no difference in conceptual growth between the two groups; however, the experimental group did show a significantly greater proficiency in terms of fluency of question asking and the degree to which their questions were analytical.

In his analysis of three pilot studies early in the Inquiry Training project, Suchman found that after a 15-week period of inquiry sessions, students improved in verification and experimentation, formulation and testing of hypotheses, and development of consistent problem-solving strategies.

In 1962, OE awarded a second grant, this time through the Cooperative Research Program, for further investigation of inquiry training. The grant made it possible to develop another series of problem films, this time dealing with economics and physiology.

Around the time that OE support was about to run out, a colleague suggested to Suchman that the Inquiry Box, an adjunct to the inquiry films, was a potentially marketable item. (Various objects can be assembled inside the box into a mechanical linkage with parts protruding through holes in the sides. After the teacher or a student assembles the pieces, the closed box is presented to a student, who tries to gather data, make inferences, and form theories about the contents of the box.) SRA, recommended as a potential marketer, showed only a lukewarm reaction to the Inquiry Box. The company was, however, strongly interested in Suchman's inquiry training work. Probably influenced by the emphasis that science received in the early 1960s, they felt that the materials could be developed into a saleable elementary science program.

The partnership of developer and publisher began in 1964, when Suchman began working at SRA to create the Inquiry Development Program in Physical Science. For the first two years, this was essentially a part-time effort, as Suchman also held the position of Director of Elementary and Secondary Education Research at the U. S. Office of Education.*

The first problem faced by the developer/publisher team was the question of using the existing content of the program. The original films had been developed under University of Illinois and USOE grants and were therefore part of the public domain. Because the public domain concept was confusing and discouraging to the publisher, it was decided that Suchman should develop an entirely different set of materials. In effect, IDP would become a new program based on the model of inquiry training that had already been tested and verified in Suchman's earlier work. Beginning in 1964, two SRA staff editors and a physics consultant worked with Suchman on the new materials. They developed a comprehensive sequence of interrelated physics themes and the 25 problem films.

It was at this point that SRA's impact on the development and design began to be noticeable. For example, a decision was made to include some experimental equipment for teachers and students. It was true that as far as the publisher was concerned, the idea of organizing the program

*Note: IDP materials were not developed by Dr. Suchman in his USOE capacity and no official support or endorsement by USOE was intended or should be inferred.

around a set of 8mm film loops, instead of using equipment, was attractive. Through the films, the staff felt they could present a laboratory approach to science without the expense and complications of laboratory equipment. They were convinced that the quality of demonstration in the films was of value to the elementary teacher, who was often inexperienced or had little content expertise in science. They were aware that buyers were often looking for a complete program, but SRA staff felt that it was not in the company's best interest to develop and publish large quantities of complex laboratory equipment and supporting materials. And, after all, use of media was becoming increasingly popular in the early 1960s, and film loops and even the loop projectors SRA planned to sell fit in perfectly.

Nevertheless, it was decided that the program materials should include some experimental equipment. Why did this happen? Suchman agreed with SRA that such equipment would add to the program's usefulness, giving the teacher opportunities to present real events. The choice of materials was also influenced by an economic motive on the part of the publisher: if the equipment could be produced inexpensively, the high cost of developing the films could be partially offset. No research or testing was conducted to justify either the use of equipment or the particular items chosen for the equipment kits.

Another set of materials was added during development at SRA, again in an attempt to include more saleable items in the published program. These were printed materials, including a hardcover Resource Book, containing reference material for students conducting investigations; and an Idea Book, inexpensively printed, which was given to each student and which had to be replaced for each new inquiry class. A Teacher's Guide provided extensive information on both the philosophy of inquiry and the subject matter of physics in order to allay some of the fears of users and purchasers who had little background in either area. The guide was accompanied by a half-hour phonograph recording of an inquiry session conducted by Suchman himself. The development of these last two items indicates that the publisher was well aware of the implementation problems that could be created by the inquiry method. Neither Suchman nor SRA, however, was yet aware of the magnitude of the teacher training problem.

Finally, an evaluation component was added to the program, largely at the insistence of the publisher. Although Suchman had seen in his Inquiry Box possibilities for evaluating while helping to strengthen a student's inquiry skills, he felt that testing and evaluation in the traditional sense were antithetical to the inquiry process. SRA, on the other hand, felt that the program must respond to the teacher's need to test students with objectives spelled out in some detail. The publisher was especially concerned with the need for accountability due to the innovative nature of the inquiry approach. A compromise was finally reached, in which Suchman developed a book called Evaluating Inquiry and an accompanying Student Response Book. Both were open-ended enough to suit Suchman and were not related in any way to grading, yet they provided information for teachers.

DIFFUSION

SRA's diffusion strategy was in general similar to strategies used by other large, sophisticated educational publishers. One component of the company's staff is devoted entirely to market analysis and projection. Once a decision has been made by marketing staff and content experts to publish a product, the main sales effort is delegated to a widespread regional sales force. This group, reinforced by advertising and other awareness efforts on the part of the company, contacts schools and districts all over the country in a direct sale campaign. At the same time, Suchman's own extensive inquiry demonstration and training activities continuously provided IDP with considerable public exposure.

Dissemination planning began in the early stages of SRA's involvement with the program, with marketing staff examining other science curricula and their attendant marketing strategies. Program and component prices were determined through use of standard, comprehensive marketing techniques such as unit forecasts. SRA's large investment in product development was added to production expense and weighed against the prevailing market price of similar products to arrive at a price that would yield a reasonable profit.

Simultaneously, subject matter experts examined the problem of appropriate grade level. They held a limited trial of program materials, mostly in the Chicago area. Although this was not a formal evaluation, the staff felt that lower elementary grade teachers found the materials too sophisticated. The company decided to aim the program at grades 6 to 9, although Suchman maintains that with proper training teachers can use the process effectively with students from 4th grade through college by simply adapting the content and terminology.

Actual dissemination began with the program's publication in 1966. The marketing effort was conducted by a network of approximately 175 staff associates who operated under area and regional managers. These managers were fairly autonomous in their choice of specific sales activities and usually handled training liaison between the central office staff and the salesmen in the field. Sales techniques were similar to those of other educational publishers: representatives contacted districts and schools in their area and provided information about SRA products. In the case of IDP, verbal or printed descriptions and even sample materials were often not enough to promote sales, and so time-consuming demonstrations with students, or workshops for teachers, became necessary.

In general, selling IDP was considerably different from selling a more conventional, easily understood curriculum program. For this reason, according to both salesmen and central staff, SRA mounted one of the most extensive staff training programs that it had ever attempted.

Suchman conducted inquiry workshops with central office personnel, who then traveled to each region to train associates. Whenever possible, the training was conducted with groups of children in a school setting, so that salesmen could see the program in operation and learn to conduct their own demonstration sessions in the schools. The training effort was continuous, at least during the early period of dissemination. Suchman held repeated meetings with sales staff and managers. He developed a series of audio tapes, discussing the theory and process of inquiry, which salesmen could listen to in their cars as they traveled.

Given the fact that salesmen also had to absorb information about other SRA products, the effort to train them in the principles of IDP seemed highly successful. According to both salesmen and central staff, the entire sales force became highly motivated by IDP. Not only were they convinced of its educational value, but the program also represented a potential high volume, high dollar amount item, since one sale might amount to $700. Among the thousands of products in the SRA catalog, only a few programs approached this cost.

Several techniques in addition to the sales network were used to increase awareness of IDP and encourage sales. Suchman went on extended tours, holding demonstrations or training workshops at invitational meetings which were organized by interested school districts, colleges of education, and other educational agencies. Occasionally the salesmen themselves, especially in large districts, would put on demonstrations to acquaint potential buyers with the program. SRA also sponsored exhibits and advertising through normal publishers' channels, including state, local, and national professional meetings and conventions.

As time went on, reports from the field indicated that despite extensive demonstration efforts on the part of the salesmen, the program was meeting resistance from potential purchasers and users. Since IDP was its basic science program, SRA initially put considerable time and resources into combating the resistance. In addition to creating and publicizing more training workshops, SRA began a subscription newsletter on the inquiry approach. Similar newsletter services were available for several newly published SRA products; they were designed as inservice aids providing information on background and learning theory, and the inquiry newsletter offered practical suggestions which would help inservice coordinators to set up inquiry training courses. A new installment was issued once or twice a month, so that information was always current. Although the newsletter was intended for inservice use, SRA found that many potential purchasers subscribed in order to obtain more up-to-date and relevant information than was available in the program materials themselves.

A more direct response to the sales problem was the packaging of Suchman's theoretical book, Developing Inquiry, with a 33 rpm recording of a classroom inquiry session on one of the problem events in IDP. This package, called a Teacher's Handbook Kit, was specifically designed to appeal to prospective users who were not willing to purchase any of the more expensive components without more in depth information about the course. For

those who wanted more than mere information, and in fact wanted to try the program in their classrooms before deciding to buy, SRA developed a Starter Set. The set consisted of five problem films and one piece of teacher demonstration equipment, called the pulse glass. Printed information was included in the form of two program booklets, the Teacher's Guide and Developing Inquiry.

None of these efforts brought immediate success, although the program, especially the films, was selling moderately well. Eventually, SRA management felt impelled to put a ceiling on the science dissemination effort for reasons of cost effectiveness. In 1972, after about six years of marketing, SRA finally decided to drop the program. The company and its sales representatives found they could do better by concentrating on programs which were less of a philosophical departure, demanded fewer changes in teacher behavior, and thus were more marketable. At this point it was decided that despite a belief in the goals of the program, this diffusion effort was not financially viable. The market was not ready for the program, and making it ready would require an investment in dissemination and implementation support that SRA could not make.

SALES FIGURES

IDP did not prove profitable enough for SRA to continue publication. Based on SRA estimates, which are reported as conservative figures, over 1,000 programs were sold during IDP's first four years on the market, followed by a drop to about 100 programs per year in the next four years. Sales of materials indicated that each program reached an average of 60 students per year.

If each of the 1400 purchasers used the program for only one year, about 84,000 students would have been reached. On the other hand, if every school had continued using the program every year since acquiring it, there would have been about 450,000 students involved.

Over the eight-year period, we can estimate a total target audience for IDP of 36,900,000 students in the 6th, 7th, and 8th grades.* (According to SRA, although the 9th grade was listed as a target in the sales

*This estimate is derived from the Statistics of Public Elementary and Secondary Day Schools: Fall, 1972, U.S. National Center for Educational Statistics, Table 5. Since enrollment figures for elementary grades have not changed significantly in the past few years, our total figure was found by adding together the enrollment figures for grades 6, 7, and 8 and then for each year from 1967-68 through 1973-74 adding 3,700,000 or the projected equivalent of a new 6th grade entering.

catalog, the sales force never actively promoted the program for the 9th grade.) Our minimum figure of 84,000 users represents 0.2 percent of this audience, and the maximum figure of 450,000 represents 1.2 percent. Thus we can conjecture that only about one percent of the target students have used IDP.

The program did not reach the high sales levels that would have been required to cover the unusually high cost of development and production. For this reason SRA was finally forced to stop publication and dissemination of the program.

DISCUSSION

SRA's original decision to market IDP was based on staff members' conviction that the inquiry approach, developed, tested, and validated by a reputable educator, could form the basis of a one-year elementary science program. Their initial assumption was correct, but they failed to realize that there is often a vast difference between a validated educational concept and its successful implementation in the schools. Suchman's idealism was infectious: he felt that once teachers and school personnel saw that the inquiry process could work in their classrooms, they would willingly press for its adoption. What neither Suchman nor SRA considered was the ingrained resistance to behavioral and attitude changes of the magnitude required by IDP. Primarily for this reason, sales of the program did not rise to their anticipated levels, and the program was ultimately dropped from the SRA catalog.

Conceptualization

Since Suchman's successful inquiry research prior to joining the SRA staff had used problems, or discrepant events, as the focus for inquiry, it was a reasonable decision to use the same kinds of problems as the basis for a commercial version. What does not seem reasonable was an assumption on the part of both developer and publisher that because the inquiry approach had worked with Suchman himself or with teachers extensively trained by him, it would work equally well with minimally-trained teachers in schools throughout the country. The point is not that the content of the program is flawed, but rather that the changes in attitude and classroom practice required by the program pose often insurmountable diffusion and implementation problems. The inquiry teacher must not only give up his expository role, but he must also, at least seemingly, forego direct control over classroom activities. A class may split up into groups for discussion, experimentation, consulting other reference material, or reviewing the problem film, and there is often a relatively high noise level and continual moving back and forth.

Another design problem involves the conduct of the question/answer session itself. Printed program materials and instructions to the teacher

reflect Suchman's original approach, which restricted acceptable questions to those which could be answered "yes" or "no." "What is it made of?" or "Why did it fall?" were questions that the teacher had to redirect. The idea was to make students aware of the kinds of questions they were asking and to help them refine their questioning strategies, but teachers regarded the restriction as another somewhat threatening aspect of the new program. It is interesting to note that Suchman has since revised the session structure considerably, allowing for more free discussion and almost any kind of question. His new approach has not found its way to prospective or current users, since SRA decided that sales figures did not justify program revision.

Not only did the question/answer format pose a threat, but the amount of knowledge apparently required to answer the questions was often unsettling to teachers. Suchman contends that no extensive science background is necessary to teach the course. The problem is that even if he is right, this point is not made clear in the program materials. The Teacher's Guide provides brief explanations of the scientific principles covered in the course and examines each problem in terms of those principles; it also recommends that teachers review a basic physics text. For elementary teachers with little background in physics, a printed explanation may not offer enough help to make them feel comfortable about a problem. Suchman also states in the materials that in order to teach in the inquiry mode, the teacher must be able to say something like, "I don't know; how can we find out?" That is a perfectly respectable answer, but it seems to take more than printed, descriptive material, or even a recording of an inquiry session, to convince most teachers.

Format

According to Suchman, SRA did not consider any alternative to the film format when they began to develop a commercial version. First of all, the films had been tested in the classroom, and secondly, SRA was intrigued by the idea of producing a program that conveniently offered a laboratory approach without quantities of laboratory equipment. As development progressed, however, staff began to feel that with the current movement toward hands-on learning, including at least some equipment might enhance the acceptability of the course. And, if it could be produced cheaply enough, volume sales might help to offset the enormous development and production cost of the films. Although Suchman was involved in the development of the equipment to some extent, none of it was ever formally tested either from a content or marketing perspective, and in fact, informal feedback indicated that teachers wanted better equipment and more of it.

Cost

Although marketing staff did use standard techniques to determine the program's cost, some school people argue that it is too expensive for them. The overall cost for IDP is nearly $700, which may represent a significant portion of a school's science budget. Yet IDP is at best only a

one-year course and is often used as a supplementary program. So after a $700 outlay, the school is still faced with completing its science program for the other grades.

Related to the cost problem is concern for the "fit" of the program content with science requirements of different states or districts. According to the publisher, the process nature of the program made it somewhat difficult to determine whether required subjects were covered, since there were no convenient chapters or other units labeled with science categories.

Testing

All formal testing of inquiry materials took place under the grants Suchman received while at the University of Illinois, 1957-63. The main emphasis of the validation was on the inquiry problem films. Both pre-post and experimental/control methods were used in pilot classrooms, and results indicated that the materials were successful in improving inquiry skills and problem-solving techniques but had little influence on content mastery. Further, although SRA finally set its target market at 5th through 9th grade, all the testing was done at the 6th grade level.

It is significant that none of the new materials developed at SRA was tested at all. The rationale was that since the inquiry concept had been validated, materials developed in accordance with that concept were bound to work. Informal feedback suggests that they do work--with trained teachers who like the product. Since no operational testing was conducted, the publisher did not discover until too late that many districts and teachers had major problems implementing the program. It seems logical to conclude that testing with the specific target market would have brought some of these problems to light.

Diffusion

SRA's diffusion strategy was comprised of the standard tactics of a large publisher. Based primarily on the activities of about 175 salesmen, it also included awareness advertising, convention exhibits, and numerous demonstrations of the program, both by SRA staff and Suchman himself. None of these efforts was ever formally evaluated, and when sales figures did not achieve expected levels, the publisher's response was more of the same techniques. SRA concluded that although it enjoys a reputation of being an extremely innovative publisher, the expense necessary to develop and implement entirely new diffusion techniques was too great to consider.

For SRA's existing sales force, the company appears to have engaged in a training effort more intensive than it had ever before tried. This suggests a publisher's representatives, no matter how well trained, are not the appropriate people to present such an educationally innovative product. One of the company's salesmen suggested that trained content specialists, readily available to discuss and demonstrate IDP, would have helped him make sales. But even this approach would have represented a major expense to the company.

Implementation

Program implementation was the source of a major problem for SRA. Once the program was purchased, the publisher provided no consistent system of implementation support for users. First of all, SRA had not determined that the structure and strategies of IDP would present the kind of threat to teachers that it did. By the time user resistance became apparent, the expense involved in providing support was prohibitive. SRA central staff, salesmen, and the developer himself all agree now that teacher training in the inquiry approach was crucial for program use. As it was, significant efforts were made to provide training upon request, but the efforts were unsystematic and in fact undependable, since they rested on the availability of Suchman or other inquiry experts to conduct training courses. The subscription newsletter on inquiry theory and practice was one attempt to deal with the problem, but it was not enough to fill the gap. There is a consensus among people involved with the program not only that significant inservice training was needed, but that in fact introducing the inquiry approach widely at a preservice level was a real necessity.

DRUG DECISION PROGRAM

By

Diane McIntyre

PRODUCT SUMMARY

Program name: Drug Decision Program

Developer: Lockheed Educational Systems, Sunnyvale, California

Distributor: Universal Research Systems, Inc., Sunnyvale, California

Description: This program provides information about drugs and their uses. The program contains 19 units, each designed to be taught in a 45-minute period. The number of class periods can be reduced by increasing the number of units per class session or stretched by covering less each period. An abbreviated form can be completed in 15 class sessions by eliminating four specified units. The 19 units are divided into five major phases: Disaster Management, Effects of Drugs on Man, Stopping Drug Abuse, Drug Attack Game, and Rehabilitation.

A multimedia programmed approach is used. For each major phase and unit, students first complete a programmed text section in their student manuals and then view color cartoons and films designed to reinforce what they have just read. In the Drug Attack and Rehabilitation phases, the students simulate decision making through role playing and gaming.

Target market: Students in grades 6 to 8. Target buyers are principals and central office curriculum staff.

Cost: Start-up costs of $3.50-5.00 per student include a reusable student manual and a consumable student workbook. Other one-time costs are: film set for $750 (or rented at $1.00 per student), copies of the drug attack game for $8.00 (ten per class), and teachers' manuals ($7.00).

Evaluation: Tests conducted by Lockheed show acquisition of knowledge on the part of students and a change of attitude away from using drugs, but there is no evidence to indicate behavioral changes. For this program, as for other drug programs on the commercial market, the developers found many of the early testing instruments inadequate and procedures unsophisticated. They therefore hesitate to quote any data.

Current status: The fifth edition of the student manual is now being distributed. Minor factual revisions have been made to update the print materials, but no content changes have been made in the films.

Innovative effects: Implementation of this program may cause scheduling problems because of its length; it requires 19 class periods for completion, and it is so tightly structured that a teacher cannot easily divide it. The start-up cost is relatively high for a program that only supplements other curricula, but the current publishers attempt to alleviate this problem by helping schools find outside funding.

Synopsis of diffusion: The program's developer, Lockheed, was one of many industrial and business firms that broadened their scope and entered the educational market with confidence in their ability to transfer knowledge and experience obtained from other fields. After a disappointing volume of initial sales caused by an inadequate analysis of user needs, Lockheed modified the product and began traditional educational marketing techniques such as advertisements in educational magazines, conference displays, mailings to superintendents, and direct sales calls to districts. These tactics were continued and expanded after the sale of the program to Technicon Educational Systems. Universal Research Systems now helps would-be adopters to locate funds for setting up the program. In addition, this company concentrates on districts that are already users and need only replace their consumable materials.

Handicapped by lack of capital, each of the publishers mounted low-budget advertising programs and skeletal sales forces. Thus, although the materials were developed for the new drug education market, dissemination was conducted in a manner traditional in the instructional materials market. This has resulted in solid, although unspectacular, profits.

THE PRODUCT

The Drug Decision Program attempts to give junior high school students an understanding of the problems connected with drug abuse. Designed for use in 19 class periods of 45 minutes each, the program prescribes a tight sequence of activities for teachers and students. For most classes, students complete programmed reading materials and then view and discuss accompanying films. Toward the end of the schedule, students spend two class periods playing a drug attack game to practice and demonstrate what they have learned about the medical and legal aspects of drugs. The final three days center around role playing activities, as students act out the story of an addict who is being considered for release from a rehabilitation center. With its programmed materials, films, and simulation gaming, the program makes the teacher more a manager than an information source. The developers perceived that most teachers would prefer this arrangement for the subject of drugs.

DEVELOPMENT

The Lockheed Corporation began development of the Drug Decision Program in 1968, a time when there was a rising national concern over increasing drug use by young people--and a time when federal spending for defense was starting to diminish. Believing that they faced a shrinking defense market, Lockheed management decided to explore the possibility of penetrating various civilian markets. They investigated concurrently a number of fields, obtaining small contracts for civic and government information systems, medical/health information systems, regional ecological information systems, and education. Management felt that there was profit to be made in these fields, as well as an opportunity to provide a social service.

In entering the field of drug education, the Lockheed staff could look to their experience in several education programs. They had developed an electronic data processing program to upgrade reading and mathematics skills of pupils identified as potential dropouts in the San Francisco Unified School District. In conjunction with the San Jose Unified School District, they had completed an intermediate-school program for sharpening reading and mathematics skills through educational gaming and simulation.

Starting in early 1968, Lockheed spent an intensive nine months developing the Drug Decision Program. Little was done initially to involve school personnel in any formal way with the development of the materials. Staff believed that their task was simple: to supply school people with good, sound curriculum materials based on documented facts. It seemed that their materials could not help but be a success, and early reactions from the market supported this confidence. For example, a staff member visiting the annual American Association of School Administrators convention phoned back jubilant about the reception of the early

prototype materials.

In the fall of 1968 the first few units were released, and Lockheed encountered its first major stumbling block: the materials were not well received. The lessons were too long and complex to be taught in the prescribed time blocks. The reading materials were repetitious and boring. An extravagant introductory multimedia presentation was a flop. The decision was quickly made to withdraw the materials and return to the drafting boards. This aborted release of the program had no visible impact on its market potential, for only a few trial units had been released. No other comprehensive drug education materials had reached the market at that time, so Lockheed still had the chance to make a contribution toward social change while reaping a sizeable profit.

This time, development efforts were organized differently. Although they did not establish a formal development cycle with a schedule of testing and revision, the developers did involve school personnel in repeated testing of program components. Several junior high school teachers in the local area, who had already struggled on their own to create drug curricula, reviewed the materials. Lockheed also secured the assistance of recognized experts in drug education to guide the presentation of information. Deciding to include a game sequence in the materials, they hired a gaming expert to assist in development. This concentrated effort continued through the spring and into the fall of 1969. During this time no marketing was undertaken, for they were hesitant to demonstrate the old materials that had been rejected, and there was nothing new to show.

DIFFUSION

Since the program's release in 1969, dissemination has rested in the hands of three different companies. In each case, the distribution effort was low-key because of limited resources for the education division. In tracing the dissemination efforts, it is interesting to note how each publisher approached the task. Lockheed Educational Systems was slow in starting its efforts and spent only about nine months in a formalized marketing program before selling the product. Technicon Education Systems used a low-cost, traditional marketing approach and realized a substantial profit. Universal Research Systems, in assuming distribution rights, is concentrating their efforts on the best sales prospects: districts still uncommitted to any one program and districts that merely need replacements for consumables.

Lockheed Educational Systems

Lockheed Educational Systems handled dissemination from 1968 until the product was sold to Technicon in 1971. Although originally released in 1968, the product was not marketed until the fall of 1969, and efforts were really not initiated until 1970. Lockheed Educational Systems, a division of Lockheed Missile and Space Company, depended to some degree on

staff expertise from the parent company. At the time they initiated marketing of the drug education program, they were depending on staff expertise in the marketing of defense materials rather than hiring an expert in educational marketing. The demand for drug education materials was unquestionably present, but it appears that Lockheed did little to exploit this market.

Staff members appeared on one program in the "Interface" series sponsored by Educational Television to show the involvement of industry in social problems, but no sales appear to have resulted directly from this nationwide exposure. Advance flyers explaining the Drug Decision Program had also been mailed to school districts. No mailings to schools were conducted, and no magazine advertising was purchased. Demonstrations were presented at a couple of national conventions, and an information letter was mailed to all state governors but with little response. Five states helped Lockheed to hold group sales meetings to discuss and display the materials. Placement on state and district textbook adoption lists was not sought for two reasons: the time necessary to accomplish this and the recognition that drug education materials would probably be purchased out of special funds rather than the budget for one curriculum area. Most of the sales effort centered on calls made to large districts; Lockheed maintained sales offices in Silver Spring, Maryland; Chicago Illinois; Houston, Texas; and Mountain View, California.

Only about 15,000 units were sold during the last months in 1969 and the first few months in 1970. This slow start demonstrated to management that a product, no matter how high the demand, does not sell itself. Late in 1970, Lockheed hired an educational marketer, and the product began generating revenue, although it was not the "blue sky" product management had thought it could be.

In May 1971, Lockheed sold its interest in the Drug Decision Program to Technicon. Extended negotiations had been underway between Lockheed and Technicon for the sale of Lockheed's medical information system, a program that had evolved during the same period as the drug program when Lockheed was entering a number of civilian markets simultaneously. Technicon was primarily engaged in the medical field but, like Lockheed, saw the benefits of having a drug education program bearing their name.

Technicon Education Systems

Technicon handled the distribution of the drug program from May, 1971 through 1972. Since many of the staff moved with the program from Lockheed to Technicon, a disruptive change in personnel was averted. The dissemination program began on a limited basis because of fund constraints. A direct mailing to superintendents of school districts in 33 states with over 2,500 average daily attendance was conducted twice in 1971 and repeated twice in 1972. Orientation workshops (primarily in the Bay Area) were conducted under county auspices, to spread word of the program's availability. Ads were placed in a variety of educa-

tional journals. Three major conventions were covered each year; the Association of Supervisors and Curriculum Developers, the American Association of School Administrators, and the National School Boards Association. The product was reviewed by the American Institutes for Research (for a Product Development Report) and by Far West Laboratory for Educational Research and Development (for inclusion in the ALERT Sourcebook and in Drug Education.)

Technicon continued to face the problem that the product appeared to require face-to-face sales visits; advertising generated interest, but follow-up contact proved essential for sales. Technicon maintained four full-time salesmen (located in Chicago; New York; Houston; and Mountain View, California) and ten commissioned salesmen. These salesmen handled only Drug Decision for Technicon. The local office answered all direct correspondence and then notified the field men of a district's interest. It was then up to the field men to initiate and maintain contact through the sale.

Almost all sales at that time, and at present, have been to school districts. Although interest has been expressed by service organizations and local groups, these organizations have been giving funding support to districts rather than acting as purchasers. By 1971, there was a combination of first-time sales and repeat sales of the consumable student workbook which must be secured for each participating student. Thus there is a constant yearly income from districts committed to using the program.

Late in 1972, Technicon decided to concentrate its capital and its management resources on its medical information system. Final sale of the program to Universal Research Systems was concluded in February 1973.

Universal Research Systems

The market approach of this firm is considerably different from that of its predecessors. Universal Research Systems, a developing company without much capital to work with, sees the program as a solid, low-effort moneymaker, an item that guarantees sales with little effort on the firm's part. This company has not revised the films but has done some updating of the print materials.

Since the product has been actively on the market since 1969, a large percentage of school districts are already aware of its existence, and efforts to create general interest can be dropped. Since Technicon had already reserved space at NSBA and ASCD, URS staff covered these two conferences but do not plan attending any other conferences. They have only advertised in one educational magazine (which was new to the market). Instead, their approach is direct interaction with districts. The sales force consists of two full-time salesmen, one on the east coast and one in the Sunnyvale, California area, along with fourteen salesmen who work on a static commission basis. Two of these men have backgrounds

in the audiovisual field, but the remainder are educators who sell Drug Decision only as a sideline.

Much of their present business is in the sale of the consumables, but some new sales are made to districts where URS has taken an active role. A number of districts have been able to purchase the materials because URS has helped them to locate funding sources and write proposals for funds. Most of the federal funding comes from the Omnibus Crime Bill under the Justice Department's Law Enforcement Assistance Administration. Funding under this program goes to the state, which distributes it to regional areas, which then award it to applicant districts. URS has also been successful in finding local foundations with funds available for such school programs.

Training is provided free of charge to districts purchasing over $1,000 worth of materials, and approximately 15 to 30 percent of the districts using the program retrain each year in order to acquaint new teachers with the program. Since the training operation is not a money-maker, URS does not generally conduct the training itself, choosing instead to contract the work to teachers and administrators already familiar with the program.

SALES FIGURES

Unfortunately, sales records were not maintained in such a way as to allow us to track exactly how many individual districts have been reached since active marketing began in 1969. A total of about 400 districts have placed orders, but some of these orders are for replacement of consumables. Best estimates are that about 250 different districts have been reached.

Any school district with students in grades 6, 7, and 8[1] is a target user for these materials. Nationwide there are approximately 16,515 operating school districts, but, aware of the high costs involved in reaching most of the districts, educational marketers limit their efforts. The present publisher indicated that informational mailings went to most of the 3,926 districts with average daily attendance (ADA) of over 2,500, which collectively represent 80.6 percent of the school population.[2] However, Universal Research Systems' records also show sales to smaller districts.

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[1]The program is no longer marketed for 9th grade students.

[2]National Center for Educational Statistics, 1972-73 Education Directory, Public School Systems. Table 1.

If we consider the target number of districts to be the 3,926 large districts, the program has reached 4.8 percent[3]; if we look at all 16,515 districts as the market, it has reached less than two percent.

More important, however, is the question of how many students have been reached. First-time sales and sales of consumables show that materials have been bought for approximately 400,000 students. (There is no way to know how many students have actually used the program.) We can estimate that about 26,348,000 students have been enrolled in grades 6 to 8 from the 1969-70 school year through the 1973-74 school year.[4] Again, we could use either of two target figures, the 81 percent of students enrolled in the large districts that received the most attention (or about 21,342,000 students), or the total 26,348,000. In either case, we reach the conclusion that the Drug Decision Program has reached almost two percent of its target population.

In the ten months since URS acquired control over the materials, 130 separate agencies have bought materials. Of these, 96 (73.8 percent) were school districts, while 17 (13.1 percent) were individual schools. Two states and six county offices also secured the materials, and there were nine other agencies (primarily private schools).

It was possible to obtain enrollment figures for 109 of the sites. Of these, 66 percent were districts between 2,500 and 24,999 ADA; 10 percent (a total of 11 districts) were over 25,000 ADA, and not surprisingly this group proved the strongest market. It is interesting to note, however, that 23.8 percent were under 2,500 ADA. Still, from a marketing standpoint, the amount of revenue generated by small districts is not high enough to warrant any special marketing attention.

Sales for Universal Research Systems come from 34 of the states and from Canada. The strongest showing of sales is in the Midwest, with 47 (or 36.1 percent) of their sales. The Midwest is followed by the eastern states (21.5 percent of the sales), the northwestern and western states (14.6 percent), and then the southern (12.3 percent) and southwestern states (4.2 percent). Illinois led the states in number of sales (14 locations) with Iowa next (11 locations), and then New York, Texas,

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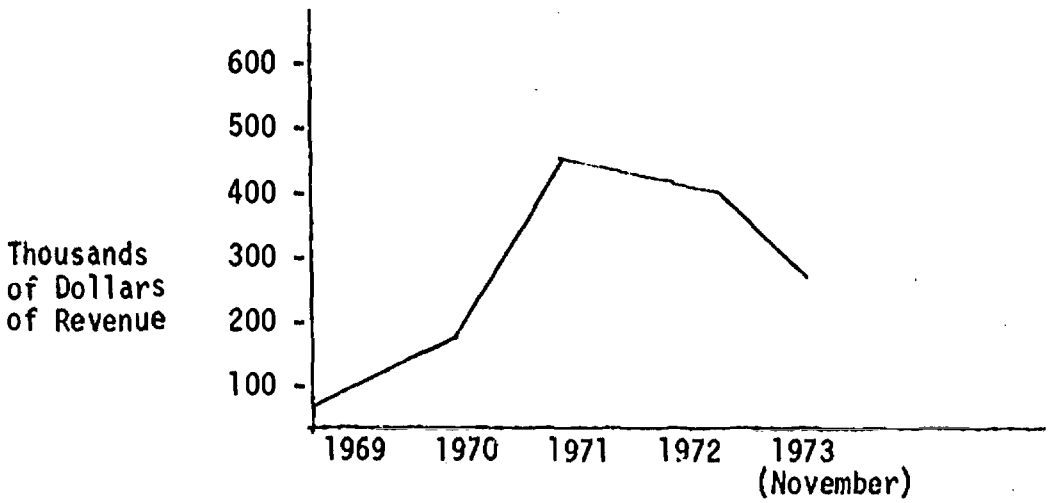
[3]Of the 109 districts for which we could secure ADA figures, 76 percent were over 2,500 ADA. Thus we assumed that approximately 190 (or .76 x 250) of the districts purchasing materials would be over 2,500.

[4]National Center of Educational Statistics, Digest of Educational Statistics, 1972 Edition. Table 28. Our total figure was found by adding together the enrollment figures for 1969-70 for grades 6, 7, and 8; the enrollment figures for the sixth grade for 1970-71 and 1971-72; and a projected sixth grade enrollment figure of 3,791,000 for 1972-73 and 1973-74.

and California, all with ten locations each. The first two publishing companies both maintained sales offices in Illinois and New York, thus probably accounting in part for the high number of sales in the Midwest and New York. The Texas sales appear to be due to "foot in the door" success, whereby sales in one district prompted other neighboring districts to acquire the materials. California, being the home office for all three publishers, should naturally account for a significant portion of the sales.

The following sales chart shows a slow start and a rapid peak followed by a slow descent.



Year	Sales Revenue	Districts (Approx.)	Students (Approx.)	Publisher
1969	negligible			Lockheed
1970	193,000	64	55,000	Lockheed
1971	464,000	100	132,000	Lockheed
1972	400,000	100	120,000	Technicon
1973	275,000	126	90,000	URS

With the exception of the slow start, which is easily explained by the lack of marketing effort, the sales figures follow closely the national trends in drug education curricula. By 1971, school districts were past their first "panic" and had reached a stage where more careful planning was conducted. Thus, at this time, more districts started to turn toward developing their own programs, utilizing materials drawn from already existing programs but not depending solely on these programs. High-interest areas outside the traditional curriculum, such as sex education or drug education, have been shown in the past to have a short market span. Demand for comprehensive, prepared materials in such areas is short-lived.

No available figures reveal the breakdown of the drug educational materials market. There are a number of similar programs that advertise themselves as comprehensive programs and a multitude of print and AV supplementary materials. There is also direct competition from districts that develop their own materials. But if we look at the total instructional materials sales for the elementary-high school field, individual shares of the market range from 3.5 percent to 7.4 percent.[5] When we consider that the three publishers of the Drug Decision Program have collectively succeeded in reaching 4.8 percent of the school districts over 2,500 ADA, then it appears they have been moderately successful.

DISCUSSION

Product Design

In retrospect, the Drug Decision Program represents the kind of drug education materials the public once thought were needed in school systems. If it had been released in 1968 as originally intended, the market almost undoubtedly would have grabbed at it. Drug Decision would have been the only curriculum program available when public concern over drug education was high, knowledge was low, and requirements were vague. The schools were willing to accept the responsibility for educating the students, but they wanted the materials, not the teacher, to bear the primary responsibility. Most teachers were uninformed about drugs and were afraid to deal with the subject area. Lockheed's materials placed the teacher in a management role, with the materials carrying the burden of the instruction.

Because Lockheed did not expect conditions to change, they did not build into the materials a flexibility that would have allowed a school district to adapt them to changing instructional needs. With this problem, and lacking the funds to revise the materials extensively, Lockheed and the subsequent publishers were locked into a financial commitment to a product that could not change as public sentiment changed. But public sentiment has been changing. Rather than selecting a purely informational, fact-oriented program, districts have started to turn their attention toward the social causes behind drug use by students. There continues to be a growing acknowledgment that a drug education program should contain more than a presentation of facts. Where does that leave the Drug Decision Program, a highly structured, primarily factual product?

The inclusion of the Drug Attack Game and the role playing in the last days of the course provides activities more in line with the ones

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[5]Sigel, E., The El-Hi Market 1971: Where It's Heading. White Plains, New York: Knowledge Industry Publications, 1971.

that schools are becoming interested in. The introduction of the concept of disaster management also sets this program apart from pharmaceutical fact programs. Nevertheless, with its tight structure and emphasis on facts, the program does not help those teachers who want their classes to concentrate on larger social issues.

Even in 1968, problems were apparent in the materials. They required 19 class periods (45 minutes each) for the entire course, and the materials were so carefully sequenced as to prevent easy adaptation. For a class such as social studies that meets four times a week, this would mean almost five weeks of a semester devoted to this one topic. This places a heavy burden on any one department which has other materials to cover. The student and teacher manuals were large and cumbersome. The vocabulary level was originally above that of many 6th- to 8th-grade children (although subsequent revisions have modified the vocabulary). The films posed problems because there were so many of them; schools had difficulty in distributing and keeping track of them, and the publisher had difficulty in maintaining sufficient stock to supply rentals.

The program appealed to some because it attempted to provide a complete curriculum, but others objected to the fact that it allowed little room for input from a school system.

The program costs have fluctuated slightly with different publishers but have run as high as $4-5 per student. Costs are reduced as more students are involved. It would seem that the high cost of this program would have had some effect on sales. The present publisher, however, perceives his competition to be locally developed programs rather than other commercial programs.

Field Testing

In the early stages of development in 1968, almost no field testing was conducted. The next year, however, testing was done in California and Rhode Island. Some of the tests took place on an informal basis with local teachers acting as consultants, while other tests were more extensive. Testing was not used as a tool to market the materials. Although Rhode Island schools bought the materials and agreed to participate in the testing, they did not extend their use past the trial period in more than a few places. None of the participating California school districts purchased the materials.

Dissemination

All of the three publishers have employed slightly different techniques dictated by the age of the materials, changes in the market, and their own situations. Lockheed's sales efforts were minimal until an educational marketer was hired nine months before the program was sold to Technicon. Marketing was hampered because of limited funds at both Lockheed and Technicon. The staff cooperated with any outside organization

that evaluated the program, advertised in frequently-consulted educational magazines, attended and set up displays at the largest national educational conferences, and conducted mailings to superintendents in the largest school districts. There was no federal money available to them for demonstration projects or for the establishment of linking agents. They concentrated their resources on the cheapest mass advertising available and used their sales force to visit the largest school districts where there was the potential for the biggest payoff. Few sales have come through the mails; most required personal interaction with the buyers. The selling job was somewhat complex, for educators were uncertain of how to proceed in the area of drug education.

Universal Research Systems has centered its resources on wooing large districts that are still uncommitted to any one program. Feeling that most educators are aware of the need for a special drug education effort, and figuring that most have heard about the Lockheed materials, the URS staff concentrated their efforts on legwork. They are prepared to assist a school district in locating and securing foundation or federal support for buying their materials. This kind of direct interaction has paid off not only in initial sales but also in repeat sales of the consumable items.

From the publisher's standpoint, repeat sales are inexpensive; costs are merely incurred in office processing work such as packaging and shipping. Approximately 90 percent of their sales now are follow-up sales which require little attention from staff. Because demand for comprehensive programs has dropped, income comes primarily from the consumables sold to districts that adopted the program in the past.

Training

Each of the publishers has offered free training to districts that purchase $1,000 worth of materials. For others, training costs run about $200. The primary intent of the training has been to familiarize teachers with the course materials, not to help them to expand the course content. The present publisher contracts the training out to teachers and administrators skilled in using the materials. The training is not set up to make money for the publishers, nor was it started as a mechanism for drawing more sales. However, the continued provision of training does act as an incentive to a school district to continue with the course, to train entering teachers, and to re-order copies of the consumable student workbook, since it is far easier for a district to continue an old program than to initiate a new one.

TECHNOLOGY FOR CHILDREN (T4C)

PROGRAM SUMMARY

Product name: Technology for Children (T4C)

Developer: Division of Vocational Education, New Jersey State Department of Education, Trenton, New Jersey

Distributor: Same

Description: Technology for Children is a K-6 child-centered program which couples "hands-on" career education activities with traditional elementary school academic subjects. Although developers contend that the program can be used in any type of classroom, it is best suited for and tends to foster an open classroom atmosphere. Participating teachers are required to attend a three-day workshop and encouraged to take a 15-week optional college course. Materials developed by the project staff consist of 47 lesson plans or "Episodes," covering activities such as the construction of a miniature house, production of a TV program, and planning of a space flight. A projected 310 "Good Idea Cards" suggest activities that may be used separately or in conjunction with the "Episodes." One such card explains how to get sound from a record using a pin and a milk carton, another encourages children to explore the concept "electricity makes heat." The staff has also put together 56 learning centers; teachers may purchase complete kits or components from companies listed in T4C publications. Teachers are not required to purchase any materials and are encouraged to develop their own learning centers.

Target market: Materials have been developed for K-6 students. T4C Supervisors (generally principals, curriculum coordinators, and teachers with release time) are the target buyers. Top-level district administrators approve requests for matching funds and release time for teachers participating in the program.

Cost: For each teacher who participates in the program, a district is given $300 by the state to be matched with $300 from its own funds. Some districts provide the entire $600 without state support. Districts may use part of that amount to cover the $20 per teacher cost of the three-day workshop, the $30 cost of the three-unit college course, or the cost of teacher release time. Teachers are free to purchase materials with the remaining money.

Episodes cost $.50 each for out-of-state purchasers, $.30 in New Jersey. Good Idea Cards are not yet available; estimates are that they will be sold for about $10 per 200-card packet. Learning centers, available through outside companies, generally cost about $50.

Evaluation: Evaluative data on T4C are inconclusive because of the difficulty of designing instruments to measure effects of this type of program. A 1969 study conducted by a member of the project staff, involving children who had been in a T4C classroom for two semesters or less, indicated that out of 29 sets of paired experimental and control achievement test scores, 27 failed to show a significant differ-

ence. (Developers note that for a statistical difference, a child would have to have improved two and one-half grade levels.) However, "in the normal I.Q. group, more children in the experimental group out-performed their counterparts in the control group, while the reverse is true with the high I.Q. group." The report questions the validity of basing an evaluation of the project on achievement test scores which may not be true measures of student learning; it concludes that more in-depth studies are needed to determine the value of T4C.

A further study covering the period from February 1 through June 30, 1971, conducted by an outside evaluator, suggests that pupils in T4C show slight gains in reading, vocabulary, and occupational cognizance tests. "Attendance records showed some gain as compared with that of the previous year, but the records were not conclusive, disciplinary problems were reported to be lessened, and teachers felt that their students had made progress in the areas of attendance, interest level, work effort, ability to work with others, and their self-concept; parents were generally in favor of the project."

Current status: Can be adopted by contacting developer.

Innovative effects: The basic element of T4C is staff training that shows teachers how to implement a career education program in combination with traditional academic subjects. Although the program may be implemented to varying degrees in any type of class, its emphasis on concrete experiences tends to promote an open classroom atmosphere. Developers realize that teachers will accept the program at different paces, and they encourage a gradual transition to openness. T4C also changes traditional budgeting patterns, since financial support is provided by the state department of education and matched by school districts. Teachers use district and state funds to purchase items they feel may be useful in program implementation. The four teams require that administrators, teachers, and the community cooperate in implementation of the program. Full implementation thus changes teaching methods, budgeting patterns, and traditional roles within adopting districts.

Synopsis of diffusion: Over several years, this product and the diffusion strategy accompanying it have taken on many different forms. Currently, the staff employs a combination of financial incentives for adopters, training for teachers, and involvement of administrators. Previous approaches that were abandoned included providing training alone, without materials, and providing a rather elaborate set of materials. In the first case teachers had trouble with implementation, and in the second case the package proved unpopular. A middle ground has now been reached, where some optional materials developed by the T4C staff can be used, and teachers can use the cash stipend to supply whatever else they need. In many ways, users take

an active part in putting together this program. Individual teachers may purchase whatever materials they feel they need; school staffs work together to establish the needed support systems; the optional materials created for the program were designed with the participation of teachers and administrators.

The stipend of $300 for each teacher using the program is granted to districts for the first year of use, and it must be matched from district funds. This plan gives teachers the resources they need to put together a program. By requiring a matching commitment from the district, the plan also encourages administrative support.

The program includes teacher training through a three-day workshop; teachers may also participate in a 15-week course for university credit. In some cases the entire faculty of a school, including the principal, has been trained, and the project staff believe this has been an effective tactic. A system for implementation involves the creation of four "teams" of administrators, teachers, and interested community people. Under this plan, each team undertakes one of the aspects of implementation--management, staff training, curriculum, and outside-school resources.

THE PROGRAM

In 1966, armed with state and federal funds augmented by a Ford Foundation grant, a staff of six in the Division of Vocational Education of the New Jersey State Department of Education began developing a kindergarten through grade six program they called Technology for Children. They knew that it would be difficult to convince teachers whose days were already filled with language arts, social studies, math, and science that yet another subject, career education, should be added to the curriculum. Instead they chose to develop a program that would combine experiences in technology with the study of traditional academic subjects. However, because the program is experience-based, the developers are asking even more effort of the teachers than that required by the addition of a new textbook. The new curriculum requires that students spend time away from their desks and become actively involved in their own learning. For some teachers who choose to fully implement the program, this means a total change in their style of teaching.

Optimally, developers see T4C as an integral part of the entire academic program. For example, construction of a log cabin by fourth-graders or a 24-hour stay inside a model space capsule they have constructed may be a valuable lesson in math, social studies, science, reading, and the world of work. Because the T4C program encourages teachers and students to explore many types of activities in different ways, the program works best in an open classroom. However, the program which was developed is extremely flexible; it consists neither of set materials nor of a single teaching method, and it can exist in many forms. The only requirement is that participating teachers attend a workshop which offers training in individualized instruction, the use of learning centers, and the safe use of carpentry tools. Since teachers are free to implement the program gradually, to use it as much or as little as they feel is necessary, and to use a wide range of materials and methods, the program is compatible with traditional teaching methods. The only classroom evidence of T4C may be one or two learning centers or a class project to make rock candy in conjunction with a unit on crystallization.

Although it is also possible to use T4C in a departmentalized school, this is difficult because the very nature of T4C stresses the intimate relationship which all subjects share with the world of technology.

DEVELOPMENT

The format of this product has remained unusually flexible; as adoption or implementation difficulties became apparent, basic changes were made in its design. Never a tightly structured package, it has included varying amounts and kinds of materials, training, and built-in incentives.

The director of the program during its infancy wanted a small, tight, highly polished program. Realizing that implementation of T4C would be a gradual process that could best be undertaken

in small steps, she chose to segment the market and concentrate first on suburban schools. This strategy offered another advantage: in the suburbs, the program would not be labelled as one that proposed locking children of low-income families into set occupations.

At first, T4C consisted primarily of six-week summer training workshops for teachers, where basic ideas and techniques were imparted. For example, teachers were encouraged to incorporate Individual Pupil Logs into the curriculum. Like children in British infant schools, pupils are expected to record plans, expectations, and achievements in these booklets. Teachers also write in the books; T4C staff note that booklets encourage individualized instruction since they are used by the teacher to report on the activities of each child.

For a time the program provided a package of carpentry tools for classrooms. This package was later dropped, to be replaced by a grant for the purchase of any materials chosen by the teacher with research help available from the T4C staff.

In June, 1969, 47 instructional units were prepared by the staff in cooperation with teachers and administrators throughout the state. These "Episodes," as they are called, provide suggestions for the introduction of technological activities. Each Episode is directed towards a specific curriculum area, but as teachers used the units, it became apparent that each actually covers a number of areas. Teachers are not required to purchase the Episodes, and T4C teachers tend to use them more as a source of ideas than as set lesson plans.

Technology for Children has never pretended to be a packaged product that can be moved effortlessly into a classroom. Those materials that have been developed have grown with the program and do not purport to be a total solution to all classroom problems; they require extensive input from the teachers. Several small firms like The Learning Tree market learning center materials and offer T4C training. Although large publishers have expressed interest in marketing T4C, the Department is not interested in a commercial publisher. "They're always telling us what we need, and how we should package the product; how do they know what we need?" the associate director asks.

Although a number of attempts have been made to evaluate the success of T4C, the developers contend that there are no reliable instruments to measure its actual impact. The first evaluative report on the project was published in 1967. Because research was conducted during the first year of the project, developers assert that the data are outdated and irrelevant; the 20 teachers surveyed had few supplies and little administrative support.

In 1969 a member of the project staff assessed the project to determine whether the program achieved its goal of providing "for enhanced learning in math, science, social studies, and language arts." Dr. Koo used 29 pairs of pre- and post-standardized achievement test scores for matched experimental and control groups who were chosen on the basis of sex and I.Q. scores. Teachers of the two groups were also matched for similar teaching ability and methods. Only two of the 29 sets of paired

scores showed significant differences, and these were negatively correlated. That is, those "children who had instruction in T4C performed poorer than those without T4C." One interesting finding was that "in the normal I.Q. group more children in the experimental group outperformed their counter parts in the control group, while the reverse is true with the high I.Q. group." He notes that achievement scores which measure abstract concepts might not be an appropriate measure of skills taught in the T4C program, and that if stress is going to be placed on learning traditional subject areas, T4C materials should be matched to textbook materials. This evaluator also emphasizes that the experimental group students had been involved in T4C no longer than two semesters and that a long-range study might produce different results. He concludes that a more accurate statement about T4C might be, "T4C enhances the learning process."

A 1971 study conducted by an evaluator from Rutgers University reports that "pupils in Technology for Children showed gains in reading, vocabulary, and occupational cognizance, although, as anticipated, the gains were slight." She noted that "Teachers felt that their students had made progress in the areas of attendance, interest level, work effort, ability to work with others, and their self-concept."

This program did not go through a research and development cycle with a schedule of field testing and revision. Its history does show a number of basic changes in format, but the changes did not arise out of extensive data from trials with potential users. The developers, many of them former teachers, had informally assessed the market and were in constant touch with users, so revision of materials grew automatically with the product. In the early days of T4C, the small team filled several roles--developers, disseminators, and consultants for users. As they taught teachers how to use the program and assisted in the classroom implementation, feedback from teachers and students led to changes in the program.

DIFFUSION

In all its formats, this product has been more than a simple career education program. The T4C staff knew that its approach could be threatening to some teachers and that while they had to work within the system of existing schools, they would be working to cause real changes in that system. How did they go about getting teachers and administrators to accept the changes?

The evolving diffusion strategy for Technology for Children can be seen as a response to three questions: What incentive is there for anyone to adopt a program on "technology?" How can teachers use this new approach effectively? Won't administrators be indifferent or hostile? Implicitly, the T4C staff has answered these questions: money is a strong incentive; teachers can be trained; principals can be encouraged to participate in implementation. They have acted on the first two statements from the beginning and more recently have begun to apply the third.

A large portion of the project funds has been used for the diffusion of T4C. The associate director of the project estimates that 20 percent of the total budget, or about $50,000 a year excluding salaries, has been spent on dissemination. In the first year of the project they spent $12,000 for a 17-minute sound color film which was produced for them by a New York firm. This film, which explains how T4C works and how children learn, was shown to PTA's, administrators, and teachers.

In order to assist teachers in bringing technological activities into their classrooms and to teach them how to integrate small kernels of career education activities into other learning experiences, the team initially used a large share of its budget to sponsor six-week summer training institutes for elementary classroom teachers. Not only was the training free to the small group of teachers who attended the first sessions, but they were also provided with a weekly stipend of $60 to $90. By the second year, 1967, 33 teachers had attended these workshops, where they had learned how to work with tools and had practiced T4C with children in four demonstration classrooms.

Certainly money was a powerful incentive to encourage teachers to attend these sessions. The training seemed effective, and a member of T4C visited classrooms to assist in implementation, answer questions, and provide encouragement. But what happened when the teachers had left the demonstration center and were on their own? What about the materials needed to implement these programs?

In 1968 the present program director, Dr. Fred Dreves, joined the project and attempted to solve the problem of lack of materials; every teacher attending the summer workshop was given a mobile tool center for his classroom. Including a wealth of tools from soldering kits to power saws, the center was valued at $700. This incentive encouraged teachers to put a part of the day aside for concrete career education activities, creating an atmosphere for open education. The project, however, encountered some criticism for this move. Parents unaccustomed to career or open education accused the project of tracking their children into trades areas. Explanations that technological education is important for every child and that T4C was used to help teach traditional subjects as well as career education were met with rebuffs. Parents suggested that it was easier to teach language arts with books, puppets, or plays than with a hammer.

Aware that this criticism was hindering acceptance of the program, and that parents and some teachers were correct in suggesting that many different paths might lead to the objectives of career education and open education, the project staff decided on a different tactic. Instead of a tool center, teachers would receive money to purchase whatever kinds of materials they felt would assist them in teaching technology. If they chose to purchase the tools, that would be fine, but every teacher would be allowed to make his own selection of materials from the whole world of technology.

When Dr. Dreves joined the staff he started a new diffusion strategy. According to the assistant director, Dreves felt that the staff was trying too hard to sell the program to all teachers. He suggested that they concentrate their efforts on those teachers most likely to implement T4C. The staff followed his advice, attempting to find those select teachers by talking with administrators and teachers themselves. Coupled with publicity from teachers who had been through training, the strategy was successful. In 1968-69 there were 56 participating teachers; by the next year the number of participants had more than doubled.

But because more teachers were becoming interested, the cost of training was increasing. In 1969, since summer institutes were proving to be too costly, three-day release-time workshops were held at the T4C annex in Florence, New Jersey. The assistant director of the program says that the six-week sessions were unnecessarily long, and one- or two-week workshops would have been best. But a lack of funds prohibited sessions that were longer than three days. Although staff members continued to assist teachers at their request, the concentrated 15-week program of in-classroom aid was dropped. Since it was likely that some teachers would want training beyond the three-day workshop, the project staff decided to implement a 15-week graduate credit course in cooperation with Trenton State College. The cost of the course was underwritten by the state so that teachers were charged a nominal fee of about $30 for the training. Instructors were drawn from the staff and seasoned T4C teachers.

Up to this point, actual materials for the T4C program were scant. The $700 package of tools had been replaced with direct grants for the teacher to purchase his own selection of materials. The T4C staff researched available products and gave teachers some information on possible choices. In June, 1969, the staff joined forces with teachers and administrators to produce "Episodes."

Each Episode includes a list of suggested activities in addition to instructions on how to build something related to the unit. For example, the unit, "Electricity at Work" explains how to assemble a door bell, a telegraph, and a lamp circuit and suggests that students install a door bell on a doll house, learn Morse code, and construct a lighting circuit complete with miniature telephone poles. Another Episode entitled "Model Stagecraft" encourages teachers and students to read and write plays, visit a community playhouse, draw plans for a small stage, present a play complete with "actors," costumes, lighting, and sound effects, and finally to design a full-size stage set for a live production.

The staff was discovering that even though the teachers had received training and materials, the lack of administrative support for the program was keeping it from being fully implemented in some districts. They considered that one way to increase this support was to require that districts match state funds for teacher training. This tactic seemed reasonable; if a teacher were interested in implementing T4C, he would have to go through the school district to get administrators to approve

$300 for his training and materials. The teacher would thus have the sanction of administrators, and they would have a vested interest in preserving and augmenting the program. And the T4C staff could use the extra funds for training additional teachers.

In 1970 the project made further moves to tie administrators into the T4C program. The Total Commitment System began by including administrators in training through an Education Professions Development Act grant in cooperation with USOE. These administrators, generally principals, became "T4C Supervisors" and were urged to cooperate with a small group of teachers in a T4C unit. According to the project director, "The T4C Supervisor afforded the group with the administrative sanction necessary to effect the changes. Old requirements that stifle innovation practices must be relaxed and teachers encouraged to unstructure the classroom learning environment."

In October, 1970 New Jersey's governor signed a bill implementing career education in three cities, enabling T4C staff to train the entire faculties of three pilot schools. This was viewed as a successful means of dissemination, and funding was renewed for a second year. In five-week workshops, held during the summer, the principal and all teachers were assisted in initiating T4C with some of the children. This tactic seemed a good one to make an immediate impact in New Jersey's urban areas.

The staff felt that they were now on the right track. They were beginning to see administrators working effectively with teachers to promote the implementation of T4C and restructuring of entire schools. This pattern of cooperation became more formalized a year after the first administrators had been trained. In 1971 a few schools, at the suggestion of the T4C project staff, began organizing three teams of both teachers and administrators and one team of outside resource people. There is no set structure for teams, but in most schools the various teams accomplish the same objectives. In general, Team One, the administrative team, is composed of the local T4C supervisor (usually the principal), high-level administrators, and interested classroom teachers. It is the duty of this team to provide overall leadership for local T4C implementation, to arrange for teacher release time, to provide money for classroom expenditures, to serve as a public relations group, and to evaluate the success of the program.

Team Two, the teacher training team, is composed of the T4C supervisor and other district staff who are interested in planning for and implementing inservice training programs, keeping teachers and administrators aware of relevant college or outside programs, and developing and maintaining a file on training help available from outside people.

Team Three, the curriculum team, "exists to provide a source of ideas for classroom implementation." It shares new ideas within the school, district, and state. Members of the team include the supervisor and interested teachers. Teams One, Two, and Three meet regularly; teachers are given release time to participate on these teams whenever possible.

Team Four is composed of individuals, organizations, or agencies outside of the school that assist in the implementation of the program. They may be vendors, hobbyists, professional persons, artisans, business people, high school students, or retired persons.

Having developed the program and its implementation mechanisms to this point, the staff members in the T4C office have been able to let others handle implementation while they concentrate on publicizing the program. Because the program is now so widespread, they have found that they have little time to venture into the field, and so most training is done by a network of T4C supervisors and those teachers who are experienced with the program. As a publicity device, the associate director says that he sends out a cryptic yearly mailing to all principals. "The mailing is a very brief description of the project; just enough so they will be curious," he says. Interested administrators call and say, "I can't make heads nor tails out of your letter." The associate director says that is exactly what he wants, because then he can start talking to them seriously. He adds, "And we talk, and talk, and talk to supervisors, elementary coordinators, to large and small groups."

Frequently a teacher becomes interested in the project and calls the Department. The assistant director says, "we listen and then ask that the teacher get in touch with the supervisor and ask him to call the project." Once the administrator calls, a member of the staff visits the school or district to explain two points: first, that T4C entails a lot of work, and second, that while the state funds the project for one year, continued funding must come from the district. In this way, the project is assured of teacher and administrator support before training begins.

SALES FIGURES

Although developers are aware that not all teachers are interested in fully implementing the type of program which T4C represents, the project has set its sights at reaching nearly all of the state's 32,000 elementary teachers by 1980. In late-1973, 2,000 teachers had received training, representing just over six percent of the total audience.

GROWTH PROJECTED FOR TECHNOLOGY FOR CHILDREN PROGRAM

Experience to Date

	1966-7	1967-8	1968-9	1969-70	1970-1	1971-2	1972-3	1973-4
Children	572	858	1456	3328	6682	12,598	25,000	50,000
Teachers	22	33	56	128	257	525	1,000	2,000
Supervisors	-	-	-	-	40	70	100	140

Projected to 1980

	1974-5	1975-6	1976-7	1977-8	1978-9	1979-80
Children	100,000	200,000	264,000	396,000	480,000	640,000
Teachers	4,000	8,000	12,000	18,000	24,000	32,000
Supervisors	210	500	650	900	1,050	1,300

Considering that this is a product that involves both time-consuming training and a financial contribution, and one that does not represent a traditional subject area, the record is impressive.

According to the Department of Vocational Education, the program has had astonishing success. The staff enthusiastically points to several measures of this success--in 1969 the Ford Foundation renewed funding with the second three-year grant for $303,460, and in January, 1970 the program received a medal of achievement award from the Aerospace Education Association. The program was one of nine winners selected at a conference where a live demonstration of the project was viewed by visitors from all over the United States. Another indication of the program's success is the large number of teachers who have expressed interest in the project. Since there is not enough room in the planned workshops during 1973 to accommodate all interested teachers, many are taking the longer college course in lieu of the workshop. For the fall, 1973 semester, 24 college classes in T4C were offered.

Members of the project staff know that not all teachers will accept T4C. The assistant director explains that some traditional teachers are doing a good job and would not be helped by T4C training. Others, he says, won't buy it because, "it isn't easy." However, there are teachers and administrators who see T4C working and see children with a renewed interest in school, and these enthusiastic users are good sales people for the project.

With the increasing success of T4C in New Jersey, it has begun to seep over the borders. Members of the staff occasionally conduct training sessions or attend national conventions on their own time to publicize T4C. According to project staff, in those areas of the country where the necessary requirements of funding, administrative support, and program flexibility are maintained, the project has been successfully implemented.

DISCUSSION

Product Design

Technology for Children has not depended on a set of glossy or boxed materials. Developers were aware from the beginning that such materials would be antithetical to the type of program they were trying to foster; while asking teachers to be flexible in their teaching they could not force them to purchase a set of highly-structured materials. Instead of developing expensive learning centers, the developers researched available products and suggested that teachers contact the individual companies if they were interested in buying materials for learning centers. The few materials that have been developed were added slowly. They were written cooperatively with teachers, and their purchase was not demanded as a part of the program. During product development, some elements were subtracted or significantly altered when they met with user opposition.

T4C stands in contrast to the many products that appeared on the market as complex, complete packages. The apparent success of its approach supports our contention that for some products, it may be better not to pretend that a process or idea can be packaged. In the case of T4C, developers viewed training and flexibility as the important aspects of the program and used their grants both to provide the training and to give teachers money to buy whatever things they found important for implementation.

Testing

Unlike most of the other products covered in this book, the T4C program did not go through a research and development cycle. Revisions were based on informal feedback which the developers gathered while working in the field. The lack of field test data does not seem to have hampered the program's adoption or implementation; this supports our observation that field test data is frequently irrelevant to users' acceptance of a product.

Dissemination Efforts

Because the project was developed and distributed by the same small group of people, many problems of other products were avoided. It was not necessary to find a publisher or provide incentives to salesmen to market T4C; the staff was totally committed to the development and dissemination of one product.

Incentives have been provided for users, though; one key factor in the dissemination of T4C has been the money given to teachers who participate. An offer of free training may perk up ears that are otherwise closed to new ideas.

Still, there have been people who are not interested or excited by the T4C concept. For some it represents the wrong philosophy of education; for others it is too much work. Aware that they could not reach all teachers in New Jersey, in the third year of the project the staff began searching for the pockets of educators who were most interested in their product. Through presentations and talks with teachers, they found those segments of the population who were most interested in the type of training that T4C provides.

Training and Implementation Assistance

T4C differed from other products in that developers were aware from the start that training was a key factor in the success of the program. They concentrated on providing teachers with the training at no expense. In addition, implementation assistance has always been provided to those teachers who request it, and the project encourages necessary administrative support for growth and change.

NEW SCHOOL OF BEHAVIORAL STUDIES IN EDUCATION

By

Kathleen Devaney

PROGRAM SUMMARY

Program name: New School of Behavioral Studies in Education

Developer: University of North Dakota

Description: This program lasted from 1968 to 1972, as a planned strategy for gradually individualizing and modernizing the curriculum and organization of North Dakota elementary schools by upgrading the education of the state's practicing teachers. The New School existed as an alternative mode of teacher education separate from the University's College of Education. It was designed to enable practicing North Dakota elementary teachers who possessed only two-year college degrees to complete liberal arts baccalaureate degrees. At the same time, master's degree candidates replaced practicing teachers and introduced new methods for individualizing instruction and modernizing curriculum into North Dakota elementary classrooms. New School also enrolled prospective teachers.

The New School was characterized by the following:

- Faculty drawn from education and liberal arts disciplines.
- Mixed enrollment of young prospective teachers, older and experienced "less-than-degree" teachers, and graduate students (master's and doctor's).
- Master's degree internship program placing fully-certificated interns in the classrooms of the "less-than-degree" teachers while the latter returned to college full time.
- Nonprescriptive college curriculum which allowed the undergraduate student to design his/her own individualized academic program and to evaluate progress with close help of a faculty advisor.
- Highest priority on learning by means of investigative, self-chosen experiences with real materials and phenomena--both for the adult college student and for the elementary student; conception of the teacher as a continuing learner; philosophy and methods associated with the British "open" primary schools.
- Academic policymaking by joint faculty-student-community governing board.

Target market: "Less-than-degree" classroom teachers in North Dakota schools; fully certificated North Dakota teachers pursuing a master's degree; and citizens of North Dakota. Inasmuch as the New School was created as a result of a statewide Legislative study and had as its long-range aim the upgrading of instruction in the state's elementary schools, both the innovative teacher education program and the new style of classroom teaching which the New School projected would have to satisfy North Dakota citizens. Most specifically, that meant pleasing parents of students whose teachers were enrolled in New School, as well as school boards and administrators.

Cost: For the retraining of an underqualified teacher a school district contributed 90 percent of the teacher's salary for a period of one or two years (the time the teacher needed to complete the B.A.), enabling the teacher to attend the New School as a full-time resident student. (These contributions over the New School's four years totalled about $1.2 million.) To start the program in 1968 a "package" funding of $600,000 was received from the Office of Education's EPDA, Bureau of Higher Education, and ESEA. In 1969-73 EPDA's Trainers of Teacher Trainers program provided a total of $1,160,000.

Outcomes and evaluation:

1. Degrees granted. B.A. degrees to 240 less-than-degree teachers from North Dakota Schools. The percentage of less-than-degree teachers in the state dropped from 59 percent in 1967 to less than 20 percent in 1973. M.Ed. degrees to 295 certificated teachers completing one-year internships in North Dakota schools. (200 remain in North Dakota schools.) 17 doctoral degrees. 150 B.A.'s to young students who had never taught before.

2. School districts that cooperated with New School. Seventy-five schools in 48 school districts (out of 303 in the state) worked directly with New School for at least a year. These districts enrolled 52,000 of the approximately 115,000 K-8 pupils in the state.)

3. Extent of diffusion of open classroom practice.

   a. The existence and persistence of a significant degree of open practice in the classrooms of New School graduates, and the gradual spread of some of those practices to other teachers in the same schools, is attested by several research studies by New School faculty and doctoral students.

   b. A number of New School graduates have emerged as leaders in their school districts and in state educational associations.

   c. Doctor's degree graduates have taken positions as professors in state colleges; doctor's and master's graduates have become administrators in a number of school districts.

   d. The New School's federally-funded Follow Through program, started in 1970 at the initiation of several school districts impressed with New School ideas, carries out all the educational principles and methods developed by the New School faculty since 1968.

4. Parents' acceptance of open education. A 1972 study of 276 parents whose children were enrolled in New School interns' classrooms showed 76 percent were 'very favorable' or 'somewhat favorable' to the classrooms.

5. Influence on the University. The New School pattern for teacher preparation and for an academic policy council (involving students, school administrators, and parents as voting members) is continuing in the University's reorganized school of education, the Center for Teaching and Learning.

Current status: In July, 1972 the New School was merged with the University's College of Education (and School of Librarianship), creating the Center for Teaching and Learning with New School director, Dr. Vito Perrone, as dean. The Center preserves the pattern of teacher education developed by the New School. A new three-year staff development program funded by the National Institute of Education in July, 1973 is directed toward New School graduates at work in North Dakota schools.

Innovative effects: New School was designed to introduce teaching practices similar to those of the "open" British infant schools into North Dakota elementary schools. Changes in school district budgetary allocations were unnecessary since interns were supported through a federal grant.

Synopsis of diffusion: Like developers described in other case studies, organizers of the New School attempted to change traditional instructional practices. Rather than developing a product, they chose to institute a new form of teacher education. Because this program did not involve a product and since it was not a prototype, there was no long period of development and field testing. Development of dissemination strategies was combined with development of the program itself.

Those practicing teachers in North Dakota who had less than a Bachelor's degree were encouraged to complete their B.A.'s in the New School while master's degree candidates replaced them in the classroom. The teacher interns, trained during the summer, carried New School philosophy and practices directly into the schools and communities in North Dakota while less-than-degree teachers were receiving a firm foundation in the new teaching methods.

Dissemination and implementation of the program were assisted by field agents. Six to eight full time faculty members and doctoral students visited interns in their schools, brought new materials and methods from campus, gave moral support, and helped them share ideas with each other through seminars. The field staff also served as a liaison between the teachers, administrators, and community. Parents learned of the program in advance through meetings faculty held all over the state, and during the school year through meetings with interns. Further support was gathered through a public information program.

The New School, during its short four-year existence, was successful in spreading new teaching methods in North Dakota; it contributed to reduction of less-than-B.A. elementary teachers from nearly 60 percent in 1968 to less than 20 percent in 1973. The school was also successful in establishing better communication among the statewide and local educational agencies in North Dakota. Research studies indicate that the New School graduates continue to practice the methods learned at New School.

THE PROGRAM

An ad hoc teacher preparation program was established at the University of North Dakota in 1968 to provide an appropriate undergraduate program for experienced North Dakota teachers who were teaching with certificates granted after just two years of college and who now wanted to (or were willing to) complete their B.A. degrees. The upgrading of these teachers was one part of a plan to improve the state's elementary schools. The other part was to introduce to fully qualified teachers some new teaching techniques which could modernize instruction for children who needed to be prepared for futures that probably would be markedly different from the lives of their parents in North Dakota towns and farms.

The program was designed as a short-term effort but one that would provide a full-time residence at the university for the underqualified teachers and an in-depth experience in innovation for the certificated teachers seeking advancement. Thus the New School adopted the mechanism of having the master's candidates do full-year internships in the classrooms of the baccalaureate candidates' home classrooms. The approach to modernization and individualization which the interns were to introduce was that of the "open classrooms" in the British infant (primary) schools. This approach recommended itself to New School designers because it capitalizes on the strengths and allows for the individuality of experienced teachers, and it uses as learning resources the natural and man-made environment of whatever community a school serves. It requires no investment in complex equipment or new textbook series.

Open education does, however, require a drastic change in the relationship between the teacher and student. The student learns from his active, concentrated, increasingly self-directed involvement with materials and experiences. The teacher organizes and individualizes the materials and continually explains and discusses the concepts and skills which derive from the student's work.

The New School academic program adhered to the learning principles which underlie the elementary open classroom. The teachers returning to the role of student were confronted by a university experience demanding a degree of self-direction and resourcefulness unfamiliar and even threatening to many of them; by a faculty, representing all the liberal arts disciplines plus education, who resolutely avoided making decisions for students; and by a student body diverse in terms of age, experience, and commitment to open education.

It appears that the New School in only four years managed to generate, plant, and nurture a new, North Dakota strain of individualized, activity-based, natural-materials-oriented educational practice in scores of schools in every part of the state. Today, the New School ideas vary in application from struggling to thriving, from superficial to profound, but they do persist, and they are spreading to other teachers who have not been participants in the New School. The influence of the New School is felt far beyond North Dakota among American educators interested in open education. Finally, New School's methods of teacher education and patterns of

educational policymaking have been incorporated in the University of North Dakota's reorganized interdisciplinary college of education, the Center for Teaching and Learning.

Unlike other case studies in this book which deal with educational products, this study describes a program of teacher education as an instrument of change. The following pages describe the New School in terms of its objectives for change, program design, participation ("adoption") by school districts within North Dakota, and the changes ("implementation") in classroom practices which came about.

DEVELOPMENT

The North Dakota Legislature, University, Department of Public Instruction, and a number of school districts conducted a statewide study of public education between 1965 and 1967. At the finish the study director characterized public elementary schools as "ineffective, inefficient, and inequitable." A major deficiency was the underpreparation of the state's elementary school teachers. North Dakota ranked fiftieth among the states: only 41 percent of the 4,537 elementary teachers held a college degree. The average age of the underprepared teachers was 43, and as a group they inspired little confidence that they would ever complete their bachelors' degrees under their own steam. North Dakota also ranked fiftieth in overall opportunities for elementary schooling; there were few kindergartens, few remedial teachers or specialty teachers. Rural schools were the least adequate on the above counts and also on the criterion of student standardized test scores. The study concluded that more money--local, state, or federal--would be wasted "unless and until the State embraces and vigorously pursues reasonable plans of local district reorganization and personnel development." Moreover, the study concluded "that it was not enough merely to certify teachers. The goal was better education through teachers trained and supported for classroom innovation."[1]

The study concluded that existing teacher education programs could not accomplish the major retraining necessary for full teacher certification and innovation. Nor could the existing educational establishment create the new relationships which seemed essential among school districts, state department of education, and higher education. Thus the study called for the University to develop "a new ad hoc school of behavioral

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[1] Statewide Study of Education, Educational Development for North Dakota: 1967-1975. Grand Forks, N.D., 1967. Overview, p. 6-21. (Six volumes of the study are available from the office of the State Superintendent of Public Instruction, State Capitol, Bismarck, N.D.)

sciences." It was to work toward the goals of placing a fully qualified and certified teacher in every classroom in the state by 1975 and of establishing cooperation among the state teacher education programs, the state department of public instruction, and the local school districts.

At the point when the North Dakota task force was making its recommendations, some members came across Joseph Featherstone's New Republic articles about a new style of education in some of England's primary or "infant" schools. North Dakotans saw the similarity between their local challenge and that of the English who had developed the "open classrooms" described by Featherstone. The North Dakota planners wanted to provide individualized, flexible, interdisciplinary learning experiences fitting children to cope self-reliantly with extensive but unpredictable changes during their lifetimes. The innovation they recommended could not require districts' large investments in new buildings, specialized staffing, and modern educational technology, all of which seemed feasible only with very large school populations. The English informal primary schools seemed in fact very similar in physical attributes and staff resources to the small town and rural schools still familiar across North Dakota. The difference was the teacher-student interaction in the English schools, which gave both student and teacher greater responsibilities and choices for learning. The commitment to upgrade teachers' professional capabilities was matched by a determination to increase local communities' participation in educational policy making, local and statewide. These purposes were consonant with the guidelines of the federal Trainers of Teacher Trainers (TTT) program, which funded the new teacher education program. (A portion of the first $600,000 grant came from ESEA. Thereafter $1,360,000 came from TTT between 1969 and 1972.)

Another principle of TTT was that teacher education faculties must be in close touch with other departments of the university, especially liberal arts faculties. Thus when the New School of Behavioral Studies in Education was founded at the University of North Dakota early in 1968, the faculty represented a cross-section of the University. "Liberal arts faculty who before were never consciously involved in the preparation of teachers joined professional teacher educators in a single, unified faculty with no departments isolating them from each other, no divergent purposes dividing them."[2]

The New School's first session began in June, 1968 when the first group of 55 master's degree candidates arrived at the Grand Forks campus for an 8-week summer session that prepared them for 9-month teaching internships in North Dakota schools starting that September.

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[2]Center for Teaching and Learning, University of North Dakota, The New School: A Review, Grand Forks, 1972. p. 14.

> All fully certified, these interns would, for the most part, replace less-than-degree teachers who would be returning to the University to complete their baccalaureate degrees in the fall. This exchange of personnel remained the backbone of the New School's involvement with North Dakota communities.... The school districts would release those less-than-degree teachers volunteering to return to college and would, in turn, accept the master's degree interns in their place. The districts also would send the New School about 90 percent of the less-than-degree teacher's original salary. This money, plus some from USOE, was used to pay both returning teachers and interns' stipends worth $3,000 to $5,000.[3]

The interchange between the less-than-degree teachers and the master's degree interns was not the entire New School program. There were also undergraduate students at the junior and senior level, who participated in courses along with the experienced returning teachers. And there was a small doctoral program to prepare teacher educators for positions in the state colleges and local school districts. Dr. Vito Perrone, an historian from Northern Michigan University, headed the New School.

"The more responsive, open classroom" which the interns were to develop was inspired by the British informal classrooms. However, the New School did not mandate a specific model of physical organization, grouping of students, or curriculum content. New School held up the following characteristics of a classroom as desirable:

1. An atmosphere of mutual trust and respect among teacher(s) and children.

2. The teacher acts as a guide, advisor, observer, provisioner, and catalyst, constantly seeking ways to extend children in their learning. The teacher views himself as an active learner and typically works without a pre-determined, set curriculum.

3. A wide assortment of materials for children to manipulate, construct, explore, etc., is available in the classroom, thus providing rich opportunities to learn from experience. Materials will have diversity and range with very little replication.

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[3] Ibid., p. 4.

4. Learning through play, games, simulations, and other activities engaged in for their own sake are legitimized....

5. Activities arise often from the interests children bring with them to school.

6. Children are able to pursue an interest deeply in a setting where there is often a variety of activities going on simultaneously.

7. There are few barriers between subject matter areas and a minimum of restrictions determined by the clock, thus providing a fluid schedule that permits more natural beginning and ending points for a child's learning activities.

8. Children's learning is frequently a cooperative enterprise marked by children's conversation with each other.

9. Older children frequently assist younger children in their learning.

10. Parents participate at a high level in the classroom, sharing in children's learning. They also assist children outside the classroom where much of the children's learning takes place.

11. Emphasis is on communication, including the expressive and creative arts.[4]

However, each teacher was to implement these ideas in ways that suited the needs and interests of students, the resources of the school setting, and his personal educational beliefs, capabilities, and style. It was assumed that many conditions and forces in the schools where New School people taught would strongly influence a teacher's "opening up."

In practice, the first actions taken to infuse New School ideas into a classroom usually involved some rearrangement and additions so that students were not confined to desks, blackboard, and texts. For at least part of the day students could move around and talk freely. Perhaps they would pursue science investigations with homemade apparatus, plants, and animals. Or they might work with manipulative math materials and everyday uses for math (classroom store, cooking, measuring, graphing tasks, etc.). Beginning reading instruction was based in children's own

[4]Perrone, V., and Pederson, C. A., "A Sea of Activity," Insights 5 (7), April, 1973. p. 9. (The newsletter of the Center for Teaching and Learning, University of North Dakota)

spoken language, which was stimulated by singing, by painting and talking about paintings, by storytelling, and story-acting-out. Children were encouraged to write their own stories. But basal readers, phonics drill, workbooks, audiovisual equipment, and other tried-and-true techniques could also be part of the blend.

The New School placed great emphasis in the teacher designing his/her own classroom environment and creating as many curriculum materials as possible, not relying totally on books and workbooks. Contributing to the innovating teacher's creative energy "crunch" were the requirements that materials ought to be taken from, or relate to, the surrounding natural and sociological environment of the school; and they ought to move each child to measurable skills and concept learning.

If the teachers whom the master's degree interns were replacing in North Dakota classrooms were to carry on this kind of program when they returned to their home schools, they would have to experience an unusual kind of college learning during their residence at the Grand Forks campus. The approximately 50 less-than-degree teachers who enrolled in 1968 in the New School--mainly middle-aged and mainly women--joined an equal number of young undergraduates without teaching experience. The student body which resulted was characterized by one observer as "a fascinating heterogeneity of ages (from 18 to 60) and values rare in an American community of any kind in this era of widening gaps."[5] They encountered a striking heterogeneity of educational experiences highlighted by constant change, and what Vito Perrone called "de-learning of their former dependency."

> The faculty felt quite strongly that teachers ultimately teach in the same manner in which they have been taught and that if students are to be trained for open classrooms they first must experience as students the kinds of qualities open classrooms have. Consequently, students were given much freedom in planning and carrying out their own programs. Responsibility for learning rested on themselves.[6]
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> There were no course requirements, no assigned textbooks, no large-group lectures, no letter grades. Each semester students enrolled in three or four 'umbrella' courses (communications, human relations, creative expression, science and math). Under these courses, which carried four semester credits each, the students undertook programs

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[5]Resnick, H. S., "Promise of Change in North Dakota," Saturday Review, April 17, 1971. p. 69.

[6]A Review, op. cit., p. 5.

> which included scheduled activities, as well as unscheduled ones, seminars, independent study, tutorials, and various experiences out in schools. At the core of their programs was their involvement with a faculty advisor.... The advisor-advisee relationship was a close one intended to be the vehicle through which the student could truly individualize and personalize his program. Each student joined his advisor in evaluating the quality of his work and his progress.[7]

There were no faculty departments or divisions at New School.

> An organizational chart would show a dean, a program coordinator, faculty, and students. Decision making at first took place through a "Committee of the Whole" involving all faculty and students. In an effort to broaden the decision-making apparatus, a new body was created and implemented during the 1971-72 school year. This committee, or "monthly Meeting" as it was called, consisted of elected representatives of faculty, students, alumni, parents, school administrators, Indians, and personnel of the State Department of Public Instruction.... The 44-member group met once a month on the campus to make policy and operational decisions regarding the New School. The dean, who also sat with the group, was essentially responsible to its decisions....
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> The chief reason for establishing such a decision-making body was to bring together representatives of the various parties having a stake in education...to operate a program in conjunction with, rather than in isolation of, the communities it intended to serve....[8]

DIFFUSION

The New School's dissemination strategy was entwined with the development of the college program, because both less-than-degree classroom teachers and certificated teachers seeking master's degrees through internship had to be recruited in order to begin the program. Since they were employees of school districts, recruitment meant persuading administrators and school boards to join the New School program, sight unseen. Several

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[7] A Review, op. cit., p. 5, 6.

[8] Ibid., p. 7, 8.

other aspects of the situation were equally difficult: 1. The exchange of classrooms between less-than-degree teachers and master's interns meant that local administrators' and parents' experience of New School ideas in action could not be gradual--after a decent period of inservice training by a district's own staff--but was immediate, and was carried out by interns who were strangers in the community. 2. The scope and duration of the ad hoc New School were extremely limited compared to the complexity of the innovation: giving children choices about their schoolwork, subordinating the mandated textbooks series to teacher-created curriculum encouraging talk and movement and play-like activities. 3. In the face of that challenge to traditional attitudes, the New School needed to implement its new practices without the backing of pilot testing. It had no local prototype to follow, no field test results to learn from.

However, the New School never saw its mission as straight, one-way diffusion--from Grand Forks to local school districts. Its conception of diffusion was that in a two-way communications process "North Dakota schools will be examining and evaluating their instructional programs to see if they are entirely relevant to the educational needs of the State (while) the New School is assisting...by demonstrating alternative approaches...."[9]

> The result of the teacher exchange program is that... the New School accepts increased responsibility for the quality of instruction in those classrooms staffed by New School resident interns (and) the cooperating school districts become a more active participant in the teacher preparation process. Thus, each shares more in the responsibilities which have traditionally belonged to the other.10

The several communications efforts undertaken to interpret the New School also were experience- and information-gathering efforts helping to shape the program. These included relations with school administrators, field supports for interns in their classrooms, communications with and involvement of parents.

Relations with Schools

Informational meetings were held throughout North Dakota in winter and spring 1968 in order to recruit both less-than-degree teachers and masters interns. In some communities teachers went to their superintendents

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[9]New School for Behavioral Studies in Education, A Description of the New School. Prepared for 1969 annual meeting of The American Association of Colleges for Teacher Education, p. 2.

[10]Ibid., p. 4.

or school boards and asked for support to join the program. In others, administrators went to teachers and encouraged them to enroll. From the start, New School had a policy of not recruiting from school districts that would send only one less-than-degree teacher or intern. It was thought that a single New School teacher in a district would be too isolated to be able to persevere in innovative practices or to influence teacher colleagues.

Between 1968 and 1972 the New School sent interns into every city-sized district in the state and into town and rural districts in every sector of North Dakota. Roman Catholic and Indian reservation schools also participated. In the first year, 13 school districts joined the New School program; in 1970-71, the peak year, 34 districts were involved; and by the end of the program 48 districts (75 separate schools) had participated. The less-than-degree teachers tended to come from smaller communities, master's degree interns from larger. Most districts participated at least two years, the time needed for their less-than-degree teachers to complete their B.A.'s. Two-thirds of the total number of less-than-degree New School students entered the program in the first two years. The faculty believe this was because the teachers who were the most venturesome--in terms of desire for innovation, professional advancement, and ability to leave home and live in Grand Forks for two years--were reached at the start. Those less-than-degree teachers who already had completed substantial credits beyond their two-year degree were not recruited as full-time resident New School students. They were encouraged to finish their B.A.'s in summer sessions at the New School, the college of education, or one of the four state colleges. A link with these other institutions of higher education was thus formed. The New School assisted one of the state colleges--Mayville--to develop a non-resident program for such teachers, and this program served 57 less-than-degree teachers in 1973.

The New School held summer workshops on campus each year for principals in whose school interns would be working. The first workshops were well attended but later few administrators came to Grand Forks to prepare for interns' implementation of the program. One faculty member speculates that this was because in later years administrators believed they had enough information. Actually, many principals had gained only superficial understanding of the changes in teaching-learning interactions needed in an open classroom. In many cases the principal's knowledge about New School proved to be insufficient to enable him to help the interns work out their new teaching methods, work with other staff in the school, and interpret the program to parents. The strongest influence with administrators was not the campus workshops but the on-site visits of the New School's field support staff.

Field Support Agents

The master's-candidate interns served as the first bearers of the open classroom innovation in North Dakota communities. There were 55 interns during New School's first year; 103 the next; 80 in 1970-71; and about 50 in 1971-72. New School set up a field support system to assist the interns in innovation. One form of support consisted of four clinic professors, each serving a different area of the state, whose assignment was to take interns new materials and methods from campus, give them moral support, and help them share ideas with each other by means of seminars. Equally important, the clinic professors served as ombudsmen for interns in dealing with their school administrators and as public relations men, interpreting the New School program to parents and community organizations. The other form of support was a corps of four resource colleagues, also serving statewide. These were doctoral students, who were available to help in an intern's classroom, to work with children, observe problems, bring new materials, scout for resources for learning in the community. Interns received onsite visits from one or another or both of these support agents about once a month. The intern's faculty advisor also visited at the start of the internship and from time to time to reassure or advise about problems.

Faculty also held after-school or Saturday curriculum workshops for interns and other teachers in their schools or districts. New methods in elementary science, math, creative drama, language arts, and reading were presented around the state. Parents also were invited to attend these workshops.

The New School's monthly newsletter, Insights, carried new curriculum and methods ideas from campus to interns and graduates, and provided a medium for them to share their own new discoveries with each other.

Outreach to Parents

Parents were the major target of a statewide dissemination campaign by New School faculty. During the four years approximately one hundred parents' meetings were held throughout North Dakota. Vito Perrone criss-crossed the state, speaking to more than ten thousand parents in the first year alone. He and other faculty members were committed to listen as well as talk to parents so that they could interpret the New School ideas in the context of parents' concerns for their own children. As one faculty member put it: "Every parent has inside of himself vital, alive, fresh ideas of what he wants for his kids."

Not just information but participation by parents was a goal of the New School. New School faculty went anywhere in the state to participate in discussions with parents about educational issues, even to hold curriculum workshops so that parents could experience the difference between activity involving concrete materials and use of texts or workbooks. The policymaking council of the college included parents as regular voting members. Many interns recruited parents to work in their classrooms. New School faculty considered this involvement to be the most effective means of parent communication.

Public Information Program

The New School conducted a public information effort to state newspapers, other educational institutions in and out of the state, parent and community groups. This work coincided with Charles Silberman's Carnegie-supported survey of elementary education. Silberman's testimony on April 19, 1970, before the U. S. Senate Select Committee on Educational Opportunity, and his book, Crisis in the Classroom (Ramdom House, 1970), praised the New School as one of the few oases of hope for elementary education in the nation. It was a natural news story: North Dakota hinterlands seen as avante-garde of education! Silberman's enthusiastic description excerpted in the June and July, 1970 issues of Atlantic was followed by articles that year in The New York Times, The Wall Street Journal, Reader's Digest, Time, The Saturday Review, and by 1972 color documentaries on CBS-TV and PBS. These were not rewrites of New School press releases but original, in-the-field coverage by education writers of these media.

The early articles became a major influence on the New School because they attracted students like pilgrims from all over the nation. Many of the out-of-state master's degree candidates were more knowledgeable and committed to concepts of open education than were the North Dakota interns, less-than-degree teachers in the undergraduate program, or North Dakota citizens--the audience for whom the New School program was designed. Some of the out-of-state undergraduate students had little or no experience with children or commitment to teaching, but simply came for the "free" undergraduate curriculum of the New School. Beginning in the school year of 1970-71, about 50 percent of the New School enrollment, both undergraduate and graduate, came from out of state. The New School's campus-community interchange meant that these out-of-state students influenced not only the college program but the community implementation of open education.

Professional visitors from all parts of the nation and all continents also came to Grand Forks--15 to 20 a week, as many as 1,000 a year. Their cause and effect were summed up by Warren Strandberg, New School program coordinator, quoted in an article in The Wall Street Journal on December 1, 1970.

> Most efforts to change the behavior of teachers have failed utterly. So people are coming from everywhere to see great and wonderful things and worship at the font of change. But this is no Mecca. We're just some very average people trying to do some very difficult things.

OUTCOMES

Student and School District Participation in New School

Less-than-degree teachers earning Baccalaureate degrees by summer 1972:	240
Total number of Baccalaureate degrees conferred by summer 1972:	390
Baccalaureate degrees in process in summer 1972:	77
Master of education degrees earned after school-year internship:	295
Master's degrees in process:	47
Doctoral degrees conferred:	17
Doctoral degrees in process:	8

The New School was a leading participant in the statewide campaign to persuade less-than-degree teachers to finish their B.A.'s--if not in residence at the New School then perhaps at a state college or during summer sessions. This effort resulted in a reduction of the percentage of less-than-degree elementary teachers in the state from 59 percent in 1968 to 20 percent in 1973. The goal of the statewide study had been to place a fully qualified teacher in every classroom in the state by 1975. By 1973 the overall percentage (both elementary and secondary) of less-than-degree teachers had been reduced to 13 percent.

Out of the 303 public and parochial school districts in the state, 53 participated in less-than-degree and master's internship placements through the end of the 1973 school year. In these districts 80 separate schools were involved with New School; the districts enrolled roughly half of the state's elementary school population.

Educational Communication

There are several indications that the New School was successful in establishing clearer, more reciprocal communications among the teacher preparation institutions and local educational agencies in the state. The effort to reach and to educate the less-than-degree teachers was in itself a communications link between the New School and the four North Dakota teachers colleges.

Although exact statistics are unavailable, the New School doctor's graduates and some of the master's graduates have taken positions in state colleges, in the state education department, and in school districts, where they continue to be links with the University. New School graduates are emerging as leaders among teachers, as indicated by the high proportion of New School graduates presenting curriculum workshops at conferences of the North Dakota Education Association and the Classroom Teachers Association.

A new communications link between the teacher preparation institution and the local school district was formed by the New School interns and the field support agents. Messages not only went out to the schools, they came back from the schools, and parents were welcomed into the dialogue. Now that the internships and field support services have been sharply cut back this link may weaken.

The university-community communications link was also affected by national communications about the New School. Wide acclaim resulted in enrollment of scores of non-North Dakotans wanting to learn how to implement open classrooms. Many held personal and educational values which differed from those prevalent in conservative communities. In such cases, communications about the open classrooms were distorted by the static of parents' disapproval of interns as people.

The opportunity for continuing statewide communication about education exists in the governing council of the newly constituted Center for Teaching and Learning, the University's college of education. This council is active, meeting monthly, and its voting membership includes representatives from the Department of Public Instruction, public and nonpublic administrators and teachers, high school students, and American Indians, as well as graduate and undergraduate students and faculty of the Center.

Influence on the University

The basic principles of the New School are central to the Center for Teaching and Learning, the University's new interdisciplinary college of education, which in July 1972 merged the New School with the regular college of education and the school of librarianship. Perrone is the dean

of the Center. Because it incorporates secondary and educational administration programs and educational research, CTL provides a potential scope of influence wider than the New School's. But the merger also necessitates blending New School concerns with those of more conventional faculty. Nevertheless, 18 months after its founding the Center demonstrates many of the characteristics of the New School: an interdisciplinary faculty (Despite loss of some New School faculty who were supported by TTT, there is still a high level of liberal arts participation); informal faculty/student relationships; the opportunity for great flexibility in course planning and student evaluation; the option for preparation in open classroom teaching; the master's degree internship program (though at a greatly reduced level; and the means of governance involving not just faculty but students, district administrators, teachers, and parents. The Center enrolls about 1,400 students. It was accredited by NCATE in March 1973.

It is an open question whether the unique New School spirit and processes will last without the protection which the New School's smallness and experimental status afforded. One graduate student, assessing the Center in 1973, observed that the New School approach probably will gradually peter out because the University will not "be excited enough about it to recruit interesting faculty," and accept and encourage "open, radical, curious, young students." A New School faculty member who spent one year in the Center before moving to another state said the Center seemed "much more structured and like a traditional program" than the New School had been. There was still a chance to create flexible, individualistic student programs but it took a strong intention, persistence, and "finagling." But after a year away "it still seems like the most radical program in existence." A New School faculty member still on the Center staff says that the necessity for the Center to go through regular University channels for routine matters of registration, creation of courses, grading, credits, and the like, causes a brake on continuing innovativeness. Perrone believes that understaffing, not channels, is the root problem.

In assessing the New School's impact in the newly formed Center, in the University, and in teacher education at large, Perrone says, "Within the Center we nov have a lot of people who come from a different frame of reference, but I think they are finding that a lot of problems they feared aren't developing, that New School faculty are more reasonable and students more responsible than they had believed."

> The program has attracted large numbers of students who would not otherwise be involved in teacher education. They have come to education from a variety of other academic and professional backgrounds and have demonstrated their capacity to enrich the intellectual

> life of schools. Nationally, fewer than four percent of those preparing for teaching at the elementary school level are men. The percentage in the New School ranged from twenty to forty percent.... Programs and courses which relate to Native American issues have been organized.... The University made a formal commitment to North Dakota Indian communities. Grading practices within the University are undergoing significant reexamination and change.... There is an enlarged interest in teacher education among liberal arts faculty--not just at the University of North Dakota but in many other institutions.... [11]

Follow Through Program

In 1970 the New School was selected to conduct a Follow Through program of open education by the school districts at Fort Yates, North Dakota, Zuni, New Mexico (both Indian reservations), Great Falls, Montana, and the three communities north of Seattle, Washington--Burlington-Edison, Ferndale, and Sedro Wooley. New School (now Center for Teaching and Learning) faculty provide on-campus and inservice training for the Follow Through teachers and aides in 81 classrooms, onsite advisory service, and instructional materials.

Future Indian Teachers

The New School initiated a Career Opportunities Program in teaching for men and women from four North Dakota Indian reservations. During 1973-74, fifty-six are enrolled. In May 1973, thirteen FIT students received B. A. degrees and remain in teaching in their communities. In May 1974, 27 more will earn degrees. (When this program began in 1968 there were two Native American teachers in North Dakota.)

Both Follow Through and the FIT programs overlapped with the regular New School (and now the Center) teacher preparation programs so that students in all programs work with each other and the same faculty are available to all.

Degree of Openness in New School Classrooms

In February 1972 the New School faculty and students conducted an evaluation based on indepth interviews with New School interns then teaching in 24 North Dakota public school classrooms; with their pupils (12 pupils from each classroom); and with the mothers of those pupils. The

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[11] Perrone, V., A Summary Statement Presented to the National Advisory Council on Education Professions, May, 1973. p. 9-10.

study sought to discover the extent of application of open practices in the interns' classroom and to assess the extent of parents' understanding and approval of the new classroom style.

The evaluation assessed teachers' practice of openness along seven dimensions: peer interaction among students; diversification of learning materials and activities; informality of relationships between students and teacher; individualization of lessons according to learning level, interests, and style; decentralization of decision-making (teacher--and students both contributing to choices about school work); integration of subject matter; and use of the community as a resource for learning. On the first three dimensions evaluators judged that the interns as a group--after six months work to develop their open classrooms--were operating in the upper, or more open, ranges of the dimensions. On the dimension of individualization, about half were in the lower range and half in the upper. On the last three dimensions, evaluators judged "that these classrooms were somewhat more centralized, less integrated, and less community resource oriented than appears desirable...."[12]

Although the 1972 interns were a long way from the New School's ideals of what an open classroom should be, the interns were far ahead of other North Dakota teachers along the dimensions of open practices. This was confirmed by an extensive questionnaire about classroom practices which was mailed in 1972 to three groups of respondents: one hundred New School graduates, one hundred in schools where there were New School interns, and one hundred who had had no New School contact. According to Vito Perrone, this survey showed sharp differentiation in conception of how children learn, in ideas of what will foster learning, and in descriptions of their own classroom practice. The New School graduates were significatnly more open, and the teachers who had some contact with interns were more open than those who had none.

Persistence of Openness among New School Graduates

Because of the influence of principals, other teachers, and parents upon the New School graduates, and the relative frailty of the New School support system, it is pertinent to wonder whether graduates "retrench" in their practice of openness after their internship year.

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[12] Patton, M., Structural Dimensions of Open Education and Parental Reaction to Open Classrooms in North Dakota: A Sociological View of the Diffusion of Open Education as an Innovation in Organizational Structure and Processes. Center for Teaching and Learning, Grand Forks, N.D., 1973. p. 197-117 and 138.

One answer to this question is provided by a 1973 mail survey of 277 of the master's degree interns graduated between 1968 and 1972. Besides administering an extensive questionnaire, the investigator questioned 54 administrators in the schools where New School graduates were teaching, and she personally observed the classrooms of 12 of the interns.

The report notes that New School training is still observable in graduates' "attitudes, understanding and use of various teaching skills," and they attribute their understandings and activities to the influence of New School. There are no significant differences in attitudes or practice among the four classes of interns, 1968 through 1972, "thus indicating the uniformity of the New School influence" in all the years it functioned. Most of the graduates are still teaching in the same districts where they spent their internship or where they worked the first year after internship--that is, in a North Dakota city or town.

Questionnaire responses and classroom observations showed that New School graduates are most "consonant" with New School philosophy in their teaching of reading, writing, math, and science. The graduates' classrooms were open in terms of diversity and liveliness of materials, and individualization of lessons, children moving around, talking, learning with and from each other, and student self-reliance in solving learning problems. The areas in which graduates "tended to be less open" included reliance on specific texts and workbooks and commercially made games and materials, and not enough use of community resources. "There is more teacher direction than the New School tended to support," ...and less responsibility given to children to plan their own work.

The graduates commented that they needed more help in relations with other teachers and in relations with parents and that they continued to need support from New School after the intern year. "It seems clear...that a major teacher support system is critical." The investigator's comparison of the graduates' attitudes with those of their administrators showed that graduates "might find it difficult to maintain the attitudes and practices presently held."

However, "The permanency or survival of the Graduate Interns in the teaching profession is impressive," Ninety percent of the first class of interns is still teaching. Of the 1970 and 1971 graduates, eighty-five percent are still teaching; and of the 1972 class, eighty-six percent persist.[13]

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[13] Craig, Sister K., C.S.J. A Follow-up Study of the Master Degree Graduates (1968-1972) from the New School of Behavioral Studies in Education. Doctoral Dissertation, Center for Teaching and Learning, University of North Dakota, August 1973. p 166-173.

Influence of New School on Less-Than-Degree Teachers

There are no data about the less-than-degree teachers' practice after they received their B.A.'s and returned to their home schools. Thus it is not possible to prove that the North Dakota Statewide Study was correct in believing that more education will make experienced teachers more innovative. Nor can one say authoritatively whether or not the New School's open style of teacher preparation is the best way for a college program to capitalize on teachers' expertise and at the same time plunge them back into the experience of being learners. It is true that more than half of the less-than-degree teachers receiving B.A.'s went on for their master's degrees--doing internships in their home schools. Thus the findings cited above about interns' openness and persistence apply in some measure to less-than-degree teachers, too.

Achievement of Children in New School Classrooms

Almost all of the school districts in which New School has placed teachers administer the Iowa Test of Basic Skills as a standardized measure of children's yearly achievement. In this testing everywhere in the state New School children are found to do as well or better than those in non-New School classrooms in their schools. In addition one study indicates that children in New School classrooms are ahead of their peers in traditional classrooms in initiative in learning, variety of interests, responsibility for their own activities, and decisions in learning.[14]

In the Burlington, Washington, Follow-Through classrooms, where children take the Iowa Test of Basic Skills, the "disadvantaged" third graders do as well as students in the regular program, according to Dr. Ben Edlund, Follow-Through director. Another indication of their achievement, Edlund believes, is the fact that 90 percent of the Follow-Through children's parents consider that the students are making satisfactory progress in school.

Parents' Acceptance of New School Classrooms

The New School's 1972 interviews with 276 mothers whose children were enrolled in the interns' classrooms found that 39 percent of them were "very favorable," 37 percent "somewhat favorable," 13 percent "somewhat unfavorable," and 8 percent "very unfavorable," towards the changes they perceived in their children's classrooms. Forty-two percent of the parents reported that they had become more favorable to the classrooms over the course of the year (the interviews were done in February), while only 9 percent liked the classrooms less than they had in the fall. So practical experience with the open classrooms over the time seemed to gain adherents.

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[14] Madison Elementary School Evaluation Reports No. 1 and 2, August 1970 and 1971. Fargo, North Dakota.

The study discovered that the parent's satisfaction with the child's progress and happiness in school was the best predictor of parent's approval. A high level of information about the classroom and actual involvement in the classroom also went along with approval. Disapproval most frequently had to do with parents' emphasis on the need for discipline, hard work, order, and respect for authority.

The evaluators commented that teachers of open classrooms need concentrated training in helping parents to see how open practices can be compatible with conservative values.

> Teachers who can direct the perceptions of parents away from a search for "discipline" to an emphasis on "self-discipline," away from a concern about permissiveness to a concern with independence and and learning to handle responsibility, and away from the glare of noise and disorder to a focus on children actively involved in what they are doing--teachers who can help parents make these jumps... are likely to find a high level of parental support....[15]

DISCUSSION

Analysis of the New School's outcomes in relation to its goals is at best a subjective exercise, for the faculty was never able to control the variables of local influences upon its teachers, and its on-campus program was purposely nondoctrinaire. This meant that each New School teacher had a somewhat different set of starting objectives, and there were many uncontrolled variables affecting his ability to achieve the objectives.

From the beginning the New School's two over riding goals--to initiate two-way communications about education, and to innovate in the state's elementary schools--posed a dilemma for many interns. They had to respect parents' values for children's education at the same time that they tried to demonstrate a different way for children to learn. The importance of open communications--between New School, interns, and communities--in solving this dilemma was confirmed in all settings in which interns practiced.

Experiences that were rewarding and those that were disappointing showed equally clearly that the school administrator was the key to

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[15]Patton, Michael, op, cit., p. 281.

making parents and teachers communicate openly and fruitfully. But the New School had not set a priority on selling its program to administrators, preferring to concentrate its personal resources on direct support to student interns and cultivating parent groups. Without committed administrators preparing the way for interns' classrooms, parents sometimes misunderstood and actively disapproved of the open methods. Without administrators catching the flack from disapproving parents, interns had to depend on supportive parents to keep their program intact. In communities where interns were perceived by parents to be young nonconformists with an alien life style, it was difficult if not impossible to find friendly parents.

Some school districts which joined the New School program in 1968 subsequently decided not to send more less-that-degree teachers, because of dissatisfaction with young, nonconformist interns who replaced the local teachers. In at least one small town the long-experienced native teachers returning with their B.A.'s found their way had been made very stony by the young interns who had taught in their classrooms while they were away. But frequently school districts left the program simply because there were no more less-than-degree teachers to enroll. There are no data to compare the influence of the New School program in districts where there was strong administrative cooperation with those in which there was relatively little involvement of principals. But it seems reasonable to accept Perrone's hindsight judgement that faculty should have set a higher priority on relationships with administrators, and that a larger corps of field support agents was the one vital component that could have strengthened all aspects of the program--the courses on campus, the interns' practice, the administrators' support for interns, and the parents' acceptance and involvement.

Nevertheless, the steps that were taken to involve parents appear to have been rewarded, on the evidence of the 1972 parents' interviews and the continuing persistence of open classrooms all around the state. Parents' support still does not amount to a groundswell of North Dakotans' support for open education or grassroots-citizen participation in public school governance. But goals of that kind should be cast in terms of decades not years, in Perrone's view.

The New School never did have enough money to support a field staff adequate to provide intensive, on-site service across the big state. Now almost nothing remains of the field support system in the Center for Teaching and Learning. The loss of TTT funding thus threatens the gains already made with parents, Perrone believes. If it were possible to rearrange budget priorities in the Center, he would reduce student enrollment and devote more resources to work in communities: developing parents' groups and providing Center interns and graduates with a continuing field support system.

The loss of TTT support did hasten institutionalization of elements of the New School's experimental teacher education program into the University. But with seven fewer FTE faculty positions, and the continuing

faculty members' efforts drained off into making the institutionalization work, Perrone observes there is a great reduction in the New School's impetus for change.

Yet the New School stream within the Center preserves an open education option, and Perrone and his colleagues are still major contributors to the open education movement nationwide.

One of the principles of that movement is that efforts to evaluate children's achievement should also serve as means for teachers to reflect about their work and to use their experience as the basis for continuing innovation. The ongoing evaluation of the New School's accomplishments is designed to contribute to this process. In 1973 the Center for Teaching and Learning began a project, funded by NIE, which will provide a five-year longitudinal study of the 1972 New School interns. Center evaluators are redesigning the 1972 parents', children's and teachers' interview instruments so that the interview findings can be fed back immediately to teachers and used by them for continuing innovation in the directions set by New School.

This evaluation seems consonant with the New School's original goals of teacher development and statewide educational communication. While it gathers the most significant data yet about the New School's accomplishments, it should also continue the statewide dialogue the University started with teachers and parents, and it intends to use that dialogue to encourage teachers' self-directed professional growth.