DOCUMENT RESUME

ED 372 475 EA 025 951

AUTHOR	Anderson, Beverly L.
TITLE	Successful Curriculum Reforms: Sharing the Knowledge with Policymakers and Practitioners in Ways That Influence Practice.
INSTITUTION	Colorado Univ., Boulder.
SPONS AGENCY	Office of Educational Research and Improvement (ED), Washington, DC. Office of Research.
PUB DATE	Sep 92
CONTRACT	RP91182001
NOTE	21p.; A Curriculum Reform Project Report.
PUB TYPE	Guides - Non-Classroom Use (055)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	*Communications; *Curriculum Development; *Curriculum Research; *Diffusion (Communication); *Educational Research; Elementary Secondary Education; *Information Dissemination; Information Utilization; Publicity; Research and Development; Theory Practice Relationship

ABSTRACT

The products of research and the successes of curriculum reforms are often inaccessible to teachers, administrators, and policymakers. This paper was designed to help researchers communicate their knowledge of successful curriculum reform to policymakers and practitioners, in order to influence practice. It focuses on making more effective use of limited resources and presents a prototype communication strategy design based on four essential issues: (1) communications as a tool for sharing fundamental curriculum reform; (2) communications mechanisms; (3) the context of communications; and (4) communications tone, style, and format. The final section describes a prototype communications strategy, from defining objectives to preparing a publication and visual materials. One figure is included. (LMI)

ED 372 475

EA

Successful Curriculum Reforms: Sharing the Knowledge with Policymakers and Practitioners in Ways that Influence Practice

by

Beverly L. Anderson
InSites, A Support Network for Educational Change
1877 Broadway, Suite 405
Boulder, CO 80302
303-444-3115
303-444-7047 (fax)

September 1992

EA 025 951

This report has been prepared under contract with the University of Colorado as part of its Curriculum Reform Project. The Curriculum Reform Project is funded by the US Department of Education (contract #R91182001). The information and opinions provided here are the sole responsibility of the author and do not represent agreement or positions of the University, the Curriculum Reform Project or its funders. Not for attribution or citation without permission of the Curriculum Reform Project or author.

Table of Contents

Successful Curriculum Reforms:
Sharing the Knowledge with Policymakers and Practitioners in Ways that Influence Practice

If a tree falls and nobody hears it, does it make a sound?

This paradox can be extended to curriculum reform. If a study is completed or a new curriculum is proven successful and nobody learns of it, can it make an impact? Researchers, educators and the public community must know what is being successfully accomplished if the progress of education reform is to proceed. But the products of research and the successes of curriculum reforms are often inaccessible to the teacher, the administrator and the policymaker.

Researchers often have greater interest and experience in the generation of new knowledge than in its communication to others. This paper has been prepared to assist researchers in communicating knowledge of successful curriculum reform to policymakers and practitioners such that it influences practice.

Historically, few resources have been available for communicating research study results. Thus, this paper focuses on making more effective use of limited resources. By defining a communication strategy and promoting a shared structuring of the communications development process, researchers can empower educators with new tools for curriculum improvement. The paper emphasizes communication strategies that are consistent with the themes of teaching and learning being used in many of today's curriculum reform efforts.

Determining the message to be communicated is but one part of the communication process. Communications is more than the transmission of information; it is the sharing of meaning. Four essential issues that include but go beyond the content of the message serve to organize the paper. A prototype communication strategy design, based on the discussion of these issues, is also provided.

1. **Communications--A Tool for Sharing Fundamental Curriculum Reform:** Communicating about today's curriculum reform requires new skills. Currently many of the nationally visible reforms involve ways of teaching and learning that are different than are common in most schools. These new approaches have an impact on the operation of all parts of the education system. **Communications--A Tool for Sharing Fundamental Curriculum Reform** addresses the components of a communication strategy that are impacted by these fundamental differences.

2. **Communication Mechanisms:** Checked the in-basket of a policymaker, principal or teacher lately? If a new research outcome is to be even read, let alone impact the actions of today's teachers, principals or policymakers, the means or "mechanisms" through which the information is introduced and shared needs careful attention. In **Communication Mechanisms** this issues is discussed further.

3. **Communication Context--Perspectives of Policymakers and Practitioners:** Those with a message of new knowledge often are so focused on developing and clarifying the nuances of their message that they forget the context and perspective of the recipients. Anticipating the audience point of view and frame of reference is as important to good communications as the message. **Communication Context--Perspectives of Policymakers and Practitioners** addresses the balance and interaction of message, messenger and receiver.

4. **Communication Tone, Style and Format:** Oh, for the good old days when communication meant simply writing a good clear paper and getting it published in a reputable publication. With the growth of communication mediums from printed materials, overhead transparencies and slides to multi-image, film, videotape, television and electronic multi-media, audience expectations have changed. Choosing the media best suited to achieve a specific objective is key. Expanded opportunities exist for using the message to mobilize action.

5. **A Prototype Communication Strategy:** Although the orientation of the paper is applicable to multiple subject areas, the prototype provided translates the preceding ideas into a practical communication strategy for sharing new knowledge in mathematics and science reform. The curriculum reform of the prototype emphasizes all students gaining the abilities to undertake complex reasoning and problem-solving.

Communications: A Tool for Sharing Fundamental Curriculum Reform

Scene: Looking straight ahead, the pilot and co-pilot in a small plane see a mountain goat barely visible among the clouds and fog.

Pilot to co-pilot: What's that mountain goat doing way up here?

The tendency of nearly everyone when receiving new information is to try to integrate it into his/her current frame of reference. Research on learning and the functioning of the brain indicates that to ask people to change their basic frame of reference is a different and more complex learning experience than simply fitting new information into a current framework.

Today, many national curriculum reform movements call for fundamentally different ways of thinking about good teaching and learning and how the education system should operate. These differences require that people reconsider very fundamental beliefs and assumptions and the implications of those beliefs and assumptions on their everyday actions. A communication strategy needs to draw attention to those fundamentals rather than leading people to think that they can maintain certain commonly held but outdated ways of thinking about education.

Four key features of many national curriculum reforms have a direct and powerful impact on the design of a communication strategy:

o The reforms emphasize a different approach to teaching and learning than the one that is most prevalent in today's schools. In the language of researchers, a "constructivist" approach to teaching and learning is needed.

o Changes in teaching and learning have implications not only for the classroom but for the functioning of administrators, policymakers, parents and everyone else involved in education. In the jargon of education reform, "the changes are systemic."

o The changes are never finished. In our rapidly changing world, social institutions and organizations need a long term pattern of continual improvement.

o The changes seriously challenge long held beliefs and assumptions about what and how learning occurs and how those outside the classroom can best support learning. The changes are fundamental.

New Approaches to Teaching and Learning

One of the basic themes of current curriculum reform is that people learn to apply and use knowledge most effectively when they are actively engaged with ideas, materials and/or other people around issues and problems of interest and significance to them. Known as a "constructivist" approach to learning, this orientation needs to be used more frequently and with a broader range of students and content areas. The ratio of engaged and interactive learning to the more passive and rote methods is seriously out of balance in today's typical school compared with what is needed.

Since one goal of the communication strategy is to have practitioners and policymakers actually apply knowledge to meaningful and important situations in their lives, the constructivist learning theory can logically be extended to the communication strategy (a teaching/learning situation for adults). Thus the strategy should incorporate a good amount of interactive and engaged learning modes as well as the presentation of information. Such an approach models what is meant by this type of learning and hopefully proves to be an effective mode of learning for policymakers and practitioners.

Systemic Change

A second basic theme of the curriculum reform movement is that systemic change is necessary, i.e., change in one part of the system is not sufficient. For years educators have attempted to put new programs in place within the existing education system without realizing that changes are needed well beyond the curriculum being used in a given classroom. Reformers now are attending more frequently to the changes needed in the organization of the school, administration, policy and the connections of the education system with other social systems.

The systemic change orientation requires attention to the compatibility and coherence of changes made in one part of the system with those made in other parts of the system. Otherwise, the actions of one group may simply cancel out that of others.

Thus the communication of findings of "systemic change" research need to be targeted to all participants in education, not just one group such as teachers. Those communications need to recognize the contributing role of each group in the total system and encourage people to work together in making changes in a collaborative fashion so that greater results are achieved.

Tailored, Ongoing, Long Term Change

A third theme is that current curriculum reform is not focused on adoption of a highly structured and packaged curriculum. Rather it is primarily a set of ideas and principles about good teaching, learning and content to be flexibly tailored to fit particular situations. The tailoring and adjustment are ongoing processes in which people are continually striving for higher quality and are continually learning more and more about how to keep improving. Thus no fixed and final state of operations is expected to be achieved within the foreseeable future. Rather, the goal is a way of operating where people are continually striving for improvement and higher quality with no limit on how much improvement is possible and necessary.

Although reformers have a picture of what they expect a system to look like when functioning well, that picture keeps evolving. There is a feeling of seeking the end of the rainbow; it is always just out of reach. As the reality of never arriving sets in, reformers hope that the feeling shifts to one of viewing reform as a journey with intermediate destinations of increasing beauty, intrigue, learning and interest. The journey and the intermediate destinations are key elements of learning and are essential to achieving the desired end results.

The Challenge to Beliefs and Assumptions

The combination of these three fundamental changes are so encompassing that they are very likely to challenge one or more of nearly everyone's basic assumptions about education. Impacting the basic assumptions and ways of operating of many people throughout the system requires a comprehensive communication strategy oriented to fundamental assumptions and ways of operating in everyday life. To be most effective, the communications--the ways of interacting with new knowledge--need to be designed to implicitly and/or explicitly model and promote the new organizational dynamic called for in the reforms.

Three documents are particularly helpful in formulating a way of making changes that affect how people change both their immediate behaviors and their basic beliefs and assumptions: **The Fifth Discipline; Configuring the Education System for a Shared Future: Collaborative Vision, Action, Reflection**; and **The Breakthrough Strategy.**[1]

Bringing together the thinking of these three sources (and others) leads to the proposal that there are five practices that need to be encouraged through a communication plan if the fundamental changes of the curriculum reforms are to be achieved:

1. **Building a Shared Vision:** Fundamental and systemic change requires that all those involved in the change have a shared vision of the desired outcomes for students and the type of education system they are trying to build to support those outcomes. A communication strategy should encourage the building of that vision. Without a common sense of direction, the actions of people throughout the system may well cancel each other rather than reinforce and support one another.

2. **Team Learning:** Changes within organizations are typically the result of teams of people rather than individuals. A communication strategy needs to reinforce having people think, debate and discuss the issues together, thus developing a richer approach to action than if done individually.

3. **Reformulating Assumptions/Mental Models:** Everyone carries around conscious or unconscious assumptions about how the world operates and the impacts of their actions and those of others. These assumptions need to be made explicit and tested against the new knowledge.

4. **Acting with Reflection:** Once a shared vision has been developed, people throughout the system need to be given freedom to act to make that vision a reality. However, individual and joint reflection on the consequences of the actions are essential to keep refining both the shared vision and effective actions.

5. **Thinking Systemically:** The key dynamic interrelationships among major components of a system are the beginning point for systemic thinking. For example, in education, the interconnections among curriculum content, testing programs, teaching theories, policy and administrative practices need to be discussed and analyzed. The subtleties of cause and effect, differences in short and long term consequences and differences in consequences close to the action and further removed need to be understood.

The prototype communication strategy at the end of this paper illustrates a way to address these five orientations and practices.

Communication Mechanisms

An English language sign in a Bucharest hotel lobby: The lift is being fixed for the next day. During that time we regret that you will be unbearable.

In a Czechoslovakian tourist agency: Take one of our horse-driven city tours--we guarantee no miscarriages.[2]

Even the best message from a researcher can be misconstrued as it gets translated for others. To further compound matters, in a world overloaded with print and electronic messages, important results from one research study can be easily lost if they are not embedded with compatible messages and transmitted via selected mechanisms to the targeted audiences. The choice of communication channels are many--printed publications, television, videotapes, teleconferences, connections with professional associations, conferences, etc.

When determining the means of transmitting a message, several considerations are important. Look for communication channels or mechanisms that:

1. **Are already being used by the recipient.** The communication channels (e.g., particular journals, associations, conferences, television programs, publishers) of choice are likely to be ones that recipients already use. Their use suggests they have found the channels dependable in the past. If they have a journal subscription or an association membership, it is likely that they routinely at least glance at the journal or attend to association materials. A totally separate mailing with no endorsement from a group or individual they respect is likely to be ignored.

2. **Are close to the recipient:** The actual communication of a message often is best done by a peer or someone well known to the recipient rather than by the researcher directly. Or a combination of a peer or trusted person and the researcher may be appropriate. For example, education researchers who want to get their messages to governors should direct the communication to governors' education advisors rather than the governor directly. The advisor can then provide the information to the governor in a context that will be meaningful.

A conference presentation to teachers may best be done by a team of a researcher and a teacher who was involved in the study rather than by the researcher alone. Such an approach both models the notion of team learning/teaching and increases the likelihood that the message will be accepted. Teachers frequently prefer hearing about new teaching approaches from other teachers rather than from researchers who may be viewed as too far removed from the classroom.

3. **Build congruence with other messages.** The message from a particular research study that is encouraging people to move in a fundamentally different direction is strengthened if it is supported by other research that points in this same direction. Therefore, the researcher is advised to look for publications, associations or other communication means that are already communicating a compatible message. The project can then take advantage of the supporting evidence and credibility of other related work.

4. **Can be used repeatedly.** Communications to intended recipients and/or intermediaries need to begin well in advance of the communication of the final results of the study. For example, a research project may have syntheses of previous related research available a year or more before the results of its own research. These syntheses can be used to develop an anticipatory message that focuses on what is already known and/or build interest and expectation around the major issues that the research will address. Although the previous research is not new, it is likely that many intended recipients are not familiar with it. This may be due to limited or ineffective communication of previous research or simply due to the rapid turnover of policymakers and practitioners. This approach can also be used to build credibility for the project by linking it to other efforts that already enjoy credibility among intended recipients.

5. **Build credibility.** The issue of credibility is an important one to consider during the early stages of establishing the communication channel. Credibility is needed concerning who is doing the research as well as how it is being done. Each channel will be somewhat different in terms of what builds credibility, but a dependable approach is to find people within the intended recipient role group who are well known, trusted and respected by the group who can help carry the message or provide an endorsement of the message and project.

Communications typically are enhanced by a short description of the researchers credentials and the orientation of the research. Information about the participating research sites may also build credibility.

6. **Access the full education system.** Often communications are focused on single role groups such as teachers or legislators. For research that is oriented toward systemic change, the communication mechanisms can be simplified by linking to existing research/service centers and major national, state or regional long term research and change efforts that have already built connections with multiple role groups and are oriented toward systemic change.

For example, the US Department of Education funds 25 national research and development centers, some of which have this orientation. Also, the National Science Foundation (NSF) is currently funding five year multimillion dollar projects in about 20 states to bring about statewide systemic change in mathematics and science education. It may be possible to communicate new research findings along with the ongoing work of these initiatives in a mutually supportive way.

With the large numbers of studies and messages being given to practitioners and policymakers about what should be done to improve education, the results of one study seldom can stand alone. They need to be part of the collective voice of those calling for reform of a similar type.

Communications Context--Perspectives of Policymakers and Practitioners

Mother: (calling upstairs) John, it's time to get up. You'll be late for school.

John: (sleepily) I don't want to go to school today. Kids don't like me. Teachers are mad at me. The principal is mean to me.

Mother: You have to go.

John: Why?

Mother: You're the assistant principal.

The context and perspective of the communication recipient has a significant impact on how the message is perceived. All too often communications are based on what the communicator (in this case, researcher) finds of interest rather than what is of interest and relevance to the recipients of the communication. A communication strategy needs to give priority to the differences in policymakers and practitioners roles, decisionmaking responsibilities and relationships within the education system and how they might use the new knowledge of the researcher.

Several characteristics of practitioners and policymakers are especially important. First of all, policymakers and practitioners tend to devote a very limited amount of time to acquiring new knowledge. They are very busy and have schedules and daily lives that are filled with continual and often disjointed activity. Think of the life of the high school teacher who moves through the day in 50 minute blocks of time, surrounded by and responsible for a different group of 20-30 students during each block of time with only a few minutes each day to interact with adults. Those times without students are usually spend dealing with problems and issues that need immediate attention. The routine of school life does little to encourage adults to acquire new knowledge.

Second, both practitioners and policymakers can tap many sources of new knowledge which vary in credibility and familiarity. Research shows that policymakers are most likely to use sources that are familiar and that they view as trustworthy.[3]

Third, the context of policymakers and practitioners does not encourage concentration on long term, systemic, fundamental change. The political pressure is strong within the education system to "make things look good." The pressures are strong on everyone: teachers are pressured by parents who are concerned that their children not be "experimented with" even if a course many be better for all students in the future; politicians are pressured to show improvements during a two year term of office.

The trick is to keep the focus on long term impact while helping people deal with short term consequences. Without some fairly early evidence that change is moving in the right direction, neither policymaker nor practitioner can sustain the change until long term impacts occur. This means communication is needed to help recipients understand and address both long and short term consequences. The "just trust us; you'll see results in 10 years" perspective does not fly with people subjected to daily political pressures.

Communications Tone, Style and Format of the Message

> *Caption on a Far Side cartoon showing two tourists about to wade across a river where piranhas have been found: "Hold up, Niles. It says here, 'These little fish have been known to skeletonize a cow in less than two minutes.' ... Now there's a vivid thought."*

A strong and useful message communicated by familiar and trusted channels can be made ineffective by an inappropriate tone, style or format. When planning the content and tone of a presentation, the researcher must ask "What is the current level of understanding? motivation? skill? What are the audience's objectives? Several suggestions are made in this regard:

1. **Avoid blaming.** The general tone of the message works best when it indicates that we are all in this together. The need for change is no one's fault but is rather the result of a rapidly changing world. We must all work together to create the type of education system that will help all students learn the essential skills and knowledge needed for today's world.

2. **Build trust and respect.** Making changes of the type called for in today's curriculum reform requires people to take risks, to try new behaviors and approaches that are uncomfortable and unfamiliar. Most people are willing and able to do this only in a trusting environment where they feel that they are respected. Trust and respect are necessary precursors to fundamental change.

3. **Recognize the perspective of special interest groups.** Once the message is drafted, reread it very carefully to check the language for words and concepts that may be offensive to certain special interest groups. Become knowledgeable about the language that alarms certain religious, cultural or political groups, for example.[4] Change of the magnitude needed today is going to require difficult choices and effortful new behaviors. Policymakers and practitioners need to know that there will be people who disagree with the directions they are trying to move; they need to be prepared for controversy.

4. **Be encouraging but realistic.** Although the message needs to convey a sense that change is possible and that the actions of policymakers and practitioners matter, it also needs to be realistic about how long change takes and what is necessary to sustain change. The message needs to prepare people to engage in effortful new behaviors and the hard work of changing familiar patterns of operation within education.

6. **Capture people's attention.** Given the many communications bombarding people today, it is important that the message captures people's attention. This is often done by opening statements and illustrations that indicate that this message may be able to help them deal with a difficult but important situation. Beginning with a story of a dilemma faced by the intended reader is an example of what might be done. Stories rather than abstract statements tend to be particularly useful.

7. **Be succinct.** Research shows that written communications to policymakers longer than a page or two are not likely to be read. The use of boxed or shaded key points or questions to consider is an effective way to communicate.

8. **Visual images and conversations are essential.** If people are to function in new ways, they need visual images of what it looks like. They need to also have opportunities to ask questions and interact with people who are currently involved in change of the type they are expected to undertake.

If the researcher's perspective dominates too strongly, little or no connection is made with the audience and results in a misdirected message. For meanings to be shared, presentation should be tailored to the audience's point of view. People learn best by relating new information to what they already know.

A Prototype Communication Strategy

Situation

Late in Year One of a three year half-million dollar research project on curriculum reform, a team was commissioned to develop a communication strategy for the project. Through the project, researchers are studying changes being made in math and science curriculum, instruction and assessment in ten schools within six districts in four states. Reform has been underway in all of the schools for at least three years and, in some, as long as eight years. The reforms are focused on helping students apply knowledge and gain problem solving and research skills.

The design of the project is such that case studies are being conducted. A summary of related curriculum reform research is being prepared early in the project. The research synthesis is expected to be available within two months of when the communications team was established. The researchers' reports of the case studies will be available for communication at the end of the second year. The researchers working on the case studies are expected to prepare a comprehensive report on each of the sites as well as a cross site analysis with implications for people at school, district and state levels who influence curriculum reform.

The project design calls for the third year to be focused on communication of results. The project has set aside a total of $30,000 for communications during Years Two and Three in addition to 10% of a key project person's time to work on communication-related activities.

After extensive discussion among themselves and with the researchers, the team proposed the following communication strategy to the researchers.

Objectives

The team began by defining the objectives of the communication strategy. The team, with full support of the project leadership, concluded that the communication strategy should:

o enrich the thinking and improve the decisionmaking of participants throughout the education system who are **already actively involved** in systemic curriculum reform.

o provide participants **already engaged** in systemic curriculum reform with tools they can use to broaden the base of understanding and support of those who are undecided about whether or not to support/participate in reform in their school, district or state.

The decision to focus on people who are already actively involved in systemic curriculum reform had a significant impact on the chosen communication strategy. Likewise, the decision to prepare tools that those engaged in reform could use with others in their immediate situation meant that the project was moving toward a communication strategy that was similar to a "trainer of trainers" approach rather than the project undertaking direct communications with people who are at the early stages of understanding and involvement.

Given limited resources, the team had two key recommendations:

o concentrate on two clusters of products with the first being used in a way that provides feedback for strengthening the second.

o concentrate on a few situations where an organized effort addressing systemic change already is underway. If possible, select situations that are part of a broader network so natural expansion of the communications occurs without expense to the project.

High Intensity Strategy

The team recommended a two phase communication strategy: Phase I would revolve around the synthesis of other research. Phase II would focus on the findings from the project's case studies. Phase I would also test some communication tools that could later be refined to improve the impact of Phase II.

After reviewing situations where systemic curriculum reform was already underway, the team and project leadership concluded that the most appropriate situations would be found among the states that have five-year multimillion dollar Statewide Systemic Initiative (SSI) grants from the National Science Foundation (NSF) to bring about systemic change in mathematics and science. They decided the project could realistically work with six states.

During Phase I, the project staff member responsible for communications would contact the project directors in those states with grants and determine the ones most likely to benefit from involvement and willing to provide the project with good feedback about the utility of the products. An arrangement would be made with each of the six states to gather information about the utility of the Phase I materials. The feedback from this pilot effort would be used to help shape both the content and the communication channels to be used for Phase II.

Major Communication Products

The team recommended that the communication products at the heart of each phase be a carefully designed report that educates all audiences, accompanied by a collection of separate brochures tailored for each key recipient group. For Phase I, the report would contain the basic message of the research synthesis and would orient people toward the issues to be addressed by the case studies. The report and brochures for Phase II would contain the key messages of the case studies put in the context of the larger body of research.

The team further recommended that the reports and brochures be written to encourage engaged learning on the part of the intended recipients. They would be written with the expectation that they would be used as the basis of discussion and debate among practitioners and policymakers either with their peers or across role lines. They would also be written to emphasize application of knowledge. For example, a common application dilemma that a particular role group is likely to face might be selected. The brochure would then provide the kinds of questions that people should debate and discuss rather than giving the answers. The central report would contain illustrations and examples of how the sites handled a similar situation but be written in a way to show that there is no one right way to handle the situation; it needs to be considered in its context.

Although details of the content and focus for the reports would be dependent on the research findings, the team used currently available knowledge to identify the most likely groups that would be key recipients of the study results if the study is to have systemic impact. For each group, the team then developed ideas on (a) settings in which they are likely to be engaged with others that could be important learning opportunities and (b) possible applications of the study results to their situation.

This information is presented in Figure 1. Figure 1 is intended as a first draft of the linkages among these factors and would be refined and discussed at various points throughout the rest of the study. Through these discussions, decisions would be made about the possibility of combining some groups or reducing the number of target groups if necessary from a resource perspective. Discussions around the figure would also continue to refine the other information as research findings become available.

A User's Guide would be prepared focused to those involved in systemic change. It would provide ideas on how to use the reports and brochures in various situations. The suggestions might include ways to structure discussions that promote team learning, build a shared vision and/or result in action plans. Ideas on using the reports and brochures to develop transparencies or construct tailored local brochures or newspaper articles could be provided.

Product Preparation

The team recommended that a professional writer familiar with education issues as well as the various audiences be hired to prepare the reports and brochures, based on the synthesis of prior research and the case study research report(s) prepared by the researchers. The writer should have skill in incorporating visual images into a written report. They recommended that the writer be identified immediately.

The writer would be asked to meet with the researchers midway through their case study work to discuss the type of information that would be in the research reports. Periodic meetings would be held throughout the research time to discuss key issues and to have the writer identify aspects of the research that the various audiences would find of particular interest. Through these discussions, agreements would be reached about the types of examples that would be in the reports and the types of implications the researchers would include in their writing. Continual refinement of Figure 1 could be part of the discussions.

Once the research reports were drafted, the writer would meet with the researchers and discuss the major findings. The writer's drafting of the reports and brochures for the various audiences would overlap with the time the researchers were preparing the final versions of their research reports.

The writer would be responsible for working with the researchers to ensure attention to the suggestions about format, style, tone and content given earlier in this paper.

When early drafts of the report and brochures were complete, a graphics designer would be hired to develop the visual images to enhance the materials.

Figure 1

Working Draft on Linking Recipients of Communications with Learning Situations and Applications of Knowledge

RECIPIENT GROUPS	SITUATIONS FOR ENGAGED LEARNING	GROUP'S SPECIAL APPLICATIONS
Students (student leaders)	student council; peer leaders in classroom	ways to analyze peer influence, student valuing of math, science, thinking in the school
Teachers	staff meetings; teacher planning; professional conferences; teacher study groups	ways to analyze their own situation to increase # of students and teachers learning, teaching this way
Parents	PTO, PTA, school community advisory groups; working with own child	questions to ask of your school; ways to assess how you are affecting your child's teacher; ways to create environment for learning for child
Principals	meetings with staff; principal meetings across district; professional conferences	compare their situation with findings on what pressures, supports they are using with what results
Curriculum directors (district/state)	facilitating meetings with teachers in subject areas; developing curriculum guides, frameworks; professional meetings	ways to work with teachers to incorporate new ideas; ways to design curriculum guides, frameworks; evaluation approaches for math, science, thinking curriculum
Assessment directors (district/state)	designing assessment with curriculum directors, teachers; ECS assessment conference; NCME	implications for performance assessment, classroom assessment development; ways to work with teachers that better recognizes the dynamic of change; analyze the pressures and supports they use

Superintendents	working with board on policy; leading administrative team	ways to analyze their pressures and supports; evaluation approaches for use of math, science, thinking curriculum
School board members	monthly meetings; retreats; professional conferences	compare their situation with findings on what pressures, supports they are using with what results
Legislators	committee meeting to present/hear testimony for change; construction of bills; conferences of legislators (NCSL,ECS)	review state policies to see how they support learning and teaching of math, science, thinking; see relative influence of policy and non-policy supports, pressures; suggested policy
Legislative staff	interactions with legislators to develop bills; NCSL, ECS conferences	more detailed ways to analyze existing policy than for legislators; relative influence of policy vs. nonpolicy pressures, supports; suggested policy
Governors	NGA meeting; advisers; public debate	speeches; policy initiatives
Governors' advisors	NGA, ECS conferences; advising governor on public position or legislative action	speeches for governor, state policy initiatives

Publication

The team recommended that the university where the research is being conducted serve as the publisher and distributor of the reports and brochures. They would be sold for cost of production and mailing. The team estimated the report would be sold for $15-$20 with the brochures being $1 each with discounts for volume purchases. The User's Guide would likely be sold for $5.

Visual Materials

The team was concerned that there were not enough resources to produce videotapes to illustrate the changes called for in the printed materials. They felt it would be very valuable to have a ten minute video that illustrates what it looks like when people at all parts of the system are functioning consistent with the best that is known about how to support the higher level learning outcomes desired for all students in mathematics and science. The team was very aware that many of the intended recipients would be unfamiliar with the type of teaching and learning strategies and the changes in administration and policy that best support these changes.

To handle this situation, the team made two recommendations:

- o They urged the project leaders to seek separate funding to support the development of a video during the third year of the project that could then accompany the written materials or be used separately. They recommended that the video illustrate the patterns and coherence of the changes from the teaching and learning in the classroom to the statehouse policymaking. The team strongly recommended that the project keep good notes about specific people and situations that would be good to capture on video.

- o The team also recommended that when selecting the six states with NSF SSI grants, those be included that are using videos to illustrate new approaches and/or teleconferences that bring people throughout the state in fairly direct contact with people deeply engaged in reform. Through the pilot feedback component of the strategy, information would be collected about the use of the materials, with and without videos, or other ways for people to see what the changes mean in operation.

Supporting Strategy

Once the focus on the six states had been developed, the team went on to recommend a low cost supporting strategy. They recommended that the writer also prepare short articles or advertisements to include in professional journals or other publications most frequently read by the various intended recipients, thus making the reports, brochures and User's Guide available to others.

The team also recommended that the researchers be encouraged to draw from the jointly prepared materials to submit articles to professional journals and make presentations at association conferences that would both expand the visibility of the study and help the researchers develop their professional credibility. This has the very important long term consequence of making it more likely that this high quality research team maintains the professional reputation needed to keep conducting research.

The project director was also encouraged to talk with NSF about how the six SSI project directors might share their experiences on the use of the materials with other SSI directors.

Summary

Other important points could be made about strategies for communicating the results of research on curriculum reform but hopefully the ideas and example above are sufficient to stimulate thinking about the issues that ensure significant use of research results.

The communication of research results of curriculum reform to practitioners and policymakers needs to attend to the basic content of the message and also focus on the modes of presentation and interaction, the context in which practitioners and policymakers operate and the tone, style and format of the message.

NOTES

1. The references for the documents are:

Anderson, B.L. and Cox, P.L. **Configuring the Education System for a Shared Future: Collaborative Vision, Action, Reflection.** Andover, MA: Regional Laboratory for the Northeast and the Islands. 1988.

Schaffer, R.H., **The Breakthrough Strategy**. New York: Harper & Row. 1988.

Senge, P.M., **The Fifth Discipline**. New York: Doubleday/Currency. 1990.

2. Taken from Lederer R., **Anguished English: An Anthology of Accidental Assaults Upon Our Language**. Charleston, SC: Wyrick & Co., 1987.

3. Hetrick, B. and Van Horn, C., "Educational Research Information: Meeting the Needs of State Policymakers," **Theory Into Practice**, Volume XXVII, Number 2, pp. 106-110.

4. Education Commission of the States. **Communicating About Restructuring**. Denver, CO: ECS. 1991.

5. The following abbreviations are used in Figure 1.

ECS = Education Commission of the States

NCSL = National Conference of State Legislatures

NCME = National Council on Measurement in Education

NGA = National Governors Association

PTA = Parent Teacher Association

PTO = Parent Teacher Organizations