

# Transitioning Learning Strategies Research into Practice:

## *Focus on the Technical Training Instructor as a Learning Strategies Expert*

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**Abstract.** Techniques for transitioning applied learning strategies research from the status of temporary research project to that of a permanent part of the classroom or learning center are discussed. Lessons learned during an ongoing, four-year effort to improve the skills of military technical training students via three sets of learning strategies/skill training materials are presented as the basis for the recommended transition techniques. The focal point of these techniques is the active involvement of instructors in all phases of the project. The advantages and disadvantages of including and not including instructors in applied learning strategies research are discussed. This is followed by a discussion of four important issues to be considered when choosing to involve instructors in a learning strategies research project.

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Transitioning learning strategies research into practice is essentially an exercise in organizational change, and since most people are at least initially resistant to change, this can be a very complex task. The unlearning of old and familiar practices and the relearning of new ones often evokes considerable anxiety, insecurity, and resistance on the part of most individuals. Given these realities, effective organizational change necessitates a conscious and deliberate effort on the part of the change agent such that the change process becomes an integral part of the entire program.

After a review of educational research programs, Fullan and Pomfret (1977, p. 394) conclude that "if there is one finding that stands out, it is that

effective implementation of social innovations requires time, personal interaction and contacts, in-service training, and other forms of people-based support." Hartley (1979, p. 53) extends this concept by stating that, "Although a project can benefit from the whole-hearted support of top officials in the system, resistance will be less and change is more likely to occur if those affected feel that the project is their own—not one devised and operated by outsiders. Resistance will be less if participants have joined in diagnostic efforts leading them to agree on what the basic problem is and to feel its importance." Diran's (1978) research also supports this approach and his data reveal that system acceptance is more likely if (a) the system is perceived as operating in the interests of various constituencies and (b) these constituencies have meaningful input into the design, development, and evaluation of the program.

Involving instructors in all phases of a program would, therefore, appear to be an effective technique for transitioning learning strategies research into practice. This extensive type of involvement does, however, produce some important implications not only for the learning strategy itself, but also for the evaluation of that strategy. For example, if instructors are to be involved in all phases of a program, the learning strategy will have to be flexible and general enough to withstand the modifications, expansions, and deletions that instructors will make. It will have to be capable of maintaining its inherent effectiveness through numerous revisions and manipulations. Additionally, if instructors are to be involved in all phases of a program, they will become a critical variable in the evaluation design and the implementation of the strategy. They will assume the role of facilitating student acquisition of special skills and

assisting student maintenance of these skills. In short, an instructor will become a learning strategies expert—an individual who helps students understand, apply, and maintain new learning strategies and skills.

Although these are ambitious goals, we have experienced some degree of success in achieving them in our learning strategies program conducted within an operational CMI environment. This program began as most educational research programs

strategies materials discussed earlier. With the exception of the two most recent sets of learning strategies materials, these new strategies have been implemented without the active involvement of instructional personnel in any of the phases of the program. The results were consistently characterized by initial dramatic effects but a diminishing of these effects as soon as the program was transitioned to military course personnel. For example, before the evaluation of the

of what a researcher would ideally like to have. What it cost us was not worth what was gained. A respectable implementation and evaluation strategy was gained but at the expense of creating an artificial setting and precipitating a great deal of instructor mistrust and anger.

By excluding the instructors from active participation in all phases of the first project, an atypical situation was created. Instructors assisting students is the normal situation in a learning center or classroom. Even in a self-paced environment, the instructor helps students clarify, practice, and apply new concepts and skills. By not explaining to the instructors the techniques and concepts we were trying to teach the students, a very artificial situation was created, and this made the replicability, generalizability, and representativeness of our findings somewhat questionable.

By excluding the instructors from active involvement in all phases of the first project, we also created feelings of mistrust and anger among the instructors. Since instructors were not informed about the skill training packages being implemented in their learning centers, a "We-They" attitude quickly developed. Instructors began to create their own information to fill the void left by the lack of information provided them by the researchers. This information was often inaccurate and inappropriate and it perpetuated the "We-They" attitudes.

#### Costs versus Benefits of Involving Instructors in All Phases of a Program

With the second and third sets of learning strategies materials, instructors were involved in all phases of the project—from the conceptualization of the project through the im-

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begin—excluding instructors from active participation in all phases of the program. As the problems with this approach increased and the first learning strategies materials encountered some resistance when transitioned into practice, other approaches were investigated. For the second and third sets of learning strategies materials, instructors were involved in all phases of the project. For a description of each of the learning strategies materials developed during our four year program, as well as a description of the research context—the Air Force Advanced Instructional System—refer to the article in this issue of JID by McCombs. The following section discusses the advantages and disadvantages of including or not including instructors in applied learning strategies research. This is followed by a discussion of four important issues to be considered when choosing to involve instructors in a learning strategies research project.

#### To Include or Not Include Instructors in Applied Learning Strategies Research: The Trade-Offs

##### Cost versus Benefits of Not Including Instructors in All Phases of a Program

Throughout the history of the AIS, numerous new strategies have been implemented into the learning center, including the three sets of learning

first set of learning strategies materials, the average course completion time for students enrolled in the course was approximately 27 days. During the evaluation of this program, the average course completion time dropped to approximately 23 days. Within two months of this evaluation, however, the average course completion time was up to approximately 25 days.

Excluding instructional personnel from active participation in all phases of various AIS programs brought the following benefits: It was not necessary to control for instructor effects, and control over experimental procedures was thought to be increased. It is important to point out, however, that the control established was far removed from "experimental control" in the true sense of the word.

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In an operational—on-going—learning environment, strict experimental control is impossible to achieve. One simply cannot control all of the variables such that two groups of students are identical except for the treatment they receive.

The control which was established in our first learning strategies project was, therefore, a crude approximation

plementation, evaluation, and transition of the project. This approach produced five significant benefits. First, by creating a more realistic situation between students and instructors, the generalizability of the results was greatly increased. Second, involving instructors in all phases of a project created a team-effort attitude. Instructors viewed the project as

"theirs." They understood the project. Having invested time, effort, and creativity into it, they were often eager to make it work and, once it was proven to be effective, to make it a permanent part of their training program.

Third, instructors are experts in their own right and by involving them

aspects of their classroom or learning centers. Again, if they view the project as "theirs," they will naturally want to incorporate it into their daily operations. Adapting an experimental project to an operational project becomes relatively easy for instructors who are interested in the project, know how and why it works, and are

strategies skill training materials from the effects of individual instructors.

Table 1 summarizes the costs and benefits of including versus excluding instructors in all phases of applied learning strategies research. As can be seen, both approaches have their merits and their drawbacks. If one desires to transition a research program into practice, the benefits of involving instructors in all phases of the program seem to outweigh the costs.

**"If instructors view the project as 'theirs,' they will naturally want to incorporate it into their daily operations."**

**Issue 1:  
Approach to Stimulating  
Instructor Interest and  
Involvement**

The approach which we use to stimulate instructor interest and involvement is to recognize and utilize the expertise that the participating instructors bring to the program. Specifically, at the beginning of each phase, participating instructors are given information concerning the Critical Issues of the phase and the results of the previous phase (except for the first phase—Conceptualization—for which there is no previous phase). They are then given the opportunity to provide the researcher with relevant information, suggestions, comments, and critiques concerning this information. Numerous Critical Questions are used to catalyze this instructor

in the project, it was possible to greatly benefit from their expertise. For example, since most instructors intimately knew and understood most of their students, they knew how to exemplify theoretical concepts with believable, interesting, and challenging applications. They often had good ideas, suggestions, and comments that made the material attractive to their students. Instructors also provided valuable information about obstacles and barriers likely to occur in the implementation stage and issues to be considered when developing the evaluation design.

The fourth important benefit realized by involving instructors in an experimental project relates to the area of student skill maintenance. Our experience indicates that if instructors know, understand, and can apply the concepts that the experimental project is trying to teach students, they can provide a valuable skill maintenance tool. They can answer student questions about the skills, provide students with new and different applications of the skills, and periodically remind students of how and when to use these skills. In fact, we have discovered that a truly effective instructor can be one of the most effective maintenance tools that a researcher can find.

Easing the transition between an effective experimental project and a permanent program is the fifth benefit realized by involving instructors in all phases of a project. That is, our experience indicates that when an experimental project proves effective, instructors who were involved in the project from its inception are often more than willing to institute the materials and procedures as permanent

proud of it. If instructors have not been included in the project, they are likely to view its operationalization as a considerable threat—a threat which they will often vigorously resist.

Although much was gained by including instructors in all phases of our second learning strategies skill training program, there were some costs. First, we had less control over experimental procedures. On at least one occasion, evaluation data was lost due to a misunderstanding of procedures. Second, due to the positive reaction of instructors to being included in all phases of the program, a "halo effect" was probably operating. Third, it was impossible to separate the effect of the learning

**Table 1.  
Benefits vs. Costs of Instructor Involvement on  
Applied Learning Strategies Research**

	BENEFITS	COSTS
NO INSTRUCTOR INVOLVEMENT	<ol style="list-style-type: none"> <li>1. No need to control for instructor effects</li> <li>2. More control over experimental procedures</li> </ol>	<ol style="list-style-type: none"> <li>1. Creation of artificial setting</li> <li>2. "We-They" attitude, mistrust, etc.</li> <li>3. Effects influenced by affect</li> <li>4. Instructor expertise is lost</li> <li>5. Instructors cannot help students maintain their new skills</li> </ol>
INSTRUCTOR INVOLVEMENT	<ol style="list-style-type: none"> <li>1. More externally valid data</li> <li>2. Team-effort; "We" attitude</li> <li>3. Capitalize on instructor expertise</li> <li>4. Maintenance of student skills</li> <li>5. Built-in transition mechanism</li> </ol>	<ol style="list-style-type: none"> <li>1. Less control over experimental procedures</li> <li>2. Effects influenced by affect</li> <li>3. Difficult to separate learning strategy effects from instructor effects</li> </ol>

input. Table 2 details the Critical Issues and Critical Questions which we have identified for each phase of a program.

## Issue 2: Three Factors to be Considered When Involving Instructors in Applied Learning Strategies Research

### 1. Using Volunteers

There are three general issues to keep in mind when involving instructors in all phases of a program. First, it is important to decide whether instructors are going to be asked to volunteer for the program or if they are going to be required to participate. Numerous researchers have noted the importance of this evaluation question in student skill training programs (Dalton & Allen, 1979; Kanfer & Grim, 1978; Komaki & Dore-Boyce, 1978), and it appears equally true that the same issues would be relevant for the instructors. Using volunteers allows one to have a small group of dedicated, motivated, and active instructors (or students). On the other hand, this small group of participants sometimes compromises the generalizability of the program to other instructor and student groups. Requiring instructors to participate increases the opportunity to randomly select instructors representative of the large instructor population of the program. This approach can, however, cause reluctance and resistance on the part of instructors who feel pressured into participating. If instructors are forced to participate, there is likely to be less enthusiasm for and internalizing of the program, and procedures are more likely to be ignored or forgotten. The trade-off, then, in deciding whether to use instructor volunteers is weighing the costs versus benefits of forcing participation (the negative attitudes, the disregard for established procedures vs. representative instructor group) *against* the costs versus benefits of using volunteers (positive attitudes, compliance with procedures vs. potentially biased group). In our judgement and experience, the scale tips heavily in favor of using instructor volunteers.

### 2. Conveying Information.

The second general issue to consider when involving instructors in a program is how the critical issues and

questions at each phase of the program are going to be conveyed to the instructors. Although it is perhaps possible and efficient to use printed handouts and questionnaires to dispense and collect the appropriate information, "research has shown time and again that there is no substitute for the primacy of personal contact among implementers and between implementers and planner/consultants, if the difficult process of unlearning old roles and learning new ones is to occur" (Fullan and Pomfret, 1977). Face to face, personal contact was used in this program and was deemed to be the most effective approach.

If one decides to convey information to and ask questions of instructors via face-to-face contact, the next general issue to consider is a strategy for meeting with them. Three options are available: (1) Instructors can be brought together in a group; (2) instructors can be met with individually,

on a one-to-one basis; or (3) both group and individual sessions can be utilized. Our experience indicates that the third alternative provides the most benefits and fewest costs.

When explaining the critical issues of the conceptualization phase to instructors, it is often not only efficient, but also effective to address a group of instructors. A sense of "group"—a "we" feeling—can be developed and the internalization process can begin. Group sessions are also beneficial for involving instructors in the summative evaluation and the follow-up and transition phase of the program. During the summative evaluation phase, group sessions are productive because they give instructors the opportunity to share ideas, exchange case histories, successes and failures, and again participate in a "we" feeling—a support group. These group sessions also give the researcher the opportunity to insure that the

Table 2.  
Critical Issues and Critical Questions for Each Phase of a Program

Phase	Critical Issues to be Explained to Instructors	Critical Questions to Ask Instructors
Conceptualization	<ol style="list-style-type: none"> <li>1. The researcher's involvement or interest in the research program.</li> <li>2. The general purpose, objective, or goals of the program.</li> <li>3. The anticipated future or schedule of the program.</li> <li>4. The instructor's role in this program (i.e., an involved team member).</li> </ol>	<ol style="list-style-type: none"> <li>1. What kinds of students often experience problems in your classroom or learning center?</li> <li>2. What kinds of problems do students often experience in your classroom or learning center?</li> <li>3. What kinds of students often do well in your classroom or learning center?</li> <li>4. What techniques or strategies do you use to help poorly performing students? How well do these strategies work?</li> <li>5. What other techniques do you wish were available?</li> </ol>
Design	<ol style="list-style-type: none"> <li>1. Results of Conceptualization phase: instructor input summarized and design guidelines recommended.</li> <li>2. Goals and purpose of the Design phase.</li> <li>3. Schedule and time frame of the Design phase.</li> </ol>	<ol style="list-style-type: none"> <li>1. How do you feel about the results of the Conceptualization phase?</li> <li>2. Do you think any important concepts or data were missed?</li> <li>3. What treatments do you think would be effective given the data?</li> <li>4. What do you think is the best approach?</li> </ol>
Development	<ol style="list-style-type: none"> <li>1. Results of the Design phase: instructor input summarized and design guidelines revised.</li> <li>2. Goals and purpose of the Development phase.</li> <li>3. Schedule and time frame of the Development phase.</li> </ol>	<ol style="list-style-type: none"> <li>1. Is this what you had in mind?</li> <li>2. What needs to be changed?</li> <li>3. What needs to be added?</li> <li>4. What problems may this create?</li> <li>5. How can these problems be solved?</li> <li>6. What is the best format or media for these materials?</li> <li>7. Do you think these materials will be successful?</li> </ol>

**Table 2 (Continued).**

Phase	Critical Issues to be Explained to Instructors	Critical Questions to Ask Instructors
Formative Evaluation	<ol style="list-style-type: none"> <li>1. Results of the Development phase: preliminary version of the materials.</li> <li>2. Goals and purpose of Formative Evaluation.</li> <li>3. Schedule and time frame of Formative Evaluation.</li> </ol>	<p>(After reviewing the materials developed)</p> <ol style="list-style-type: none"> <li>1. How do you like the materials?</li> <li>2. What needs to be changed?</li> <li>3. Do you like the format?</li> <li>4. Is it clearly written?</li> <li>5. Would this information be useful to students?</li> </ol> <p>(After instructors have used the materials for several weeks in their classroom or learning center.)</p> <ol style="list-style-type: none"> <li>6. How are the materials working?</li> <li>7. What problems do you have with the materials?</li> <li>8. What changes, modifications, or revisions need to be made?</li> </ol>
Implementation Planning	<ol style="list-style-type: none"> <li>1. Results of Formative Evaluation: strong and weak points of the materials and changes that were made to the materials.</li> <li>2. Goals and purpose of the Implementation Planning phase.</li> <li>3. Schedule and time frame of the Implementation Planning phase.</li> </ol>	<ol style="list-style-type: none"> <li>1. What is the best way to implement this product?</li> <li>2. What is the best time for implementing this product?</li> <li>3. What procedures are required for implementing this product?</li> <li>4. What problems will implementing this product produce?</li> <li>5. Are any major course changes or other changes likely to occur during the planned evaluation period?</li> </ol>
Summative Evaluation	<ol style="list-style-type: none"> <li>1. Results of Implementation Planning phase: plans for Summative Evaluation.</li> <li>2. Goals and purpose of the Summative Evaluation phase.</li> <li>3. Schedule and time frame of the Summative Evaluation phase.</li> </ol>	<p>(During summative evaluation)</p> <ol style="list-style-type: none"> <li>1. How are the materials working?</li> <li>2. How are the procedures for using the materials working?</li> <li>3. What are some of the problems you are having with the materials?</li> <li>4. What are some of the successes you have experienced using these materials?</li> </ol> <p>(When Summative Evaluation has been completed)</p> <ol style="list-style-type: none"> <li>5. How well did the materials work?</li> <li>6. Did the students like the materials?</li> <li>7. Did the students benefit from the materials?</li> <li>8. Did the students understand the materials?</li> <li>9. What would be your overall rating of the materials?</li> <li>10. What changes need to be made in the materials?</li> <li>11. How could these materials be used on a permanent basis?</li> </ol>
Follow-up and Transition	<ol style="list-style-type: none"> <li>1. Results of Summative Evaluation: changes in student performance.</li> <li>2. Who can use the materials.</li> <li>3. The future of the materials.</li> <li>4. Researcher's appreciation of the participating instructors' time and effort.</li> <li>5. If and when instructors can get copies of the final report or summary of same.</li> </ol>	<ol style="list-style-type: none"> <li>1. How do you feel about your participation in this project?</li> <li>2. What procedures or activities do you think should be changed?</li> <li>3. Would you like to volunteer for another similar project?</li> </ol>

evaluation procedures are understood and being followed uniformly. For the follow-up and transition phase of the program, group sessions are beneficial because the purpose of this phase is basically to debrief the participating instructors—to outline the final results and future of the program. A feeling of closure and perhaps even some mutual congratulations can be enhanced by the use of a group during this phase of the program.

Individual, one-to-one, sessions have been found to be effective for collecting answers to critical questions because they avoid the "peer pressure" and need for conformity that is often felt when a group of individuals get together. We have found that the answers we get from instructors to the critical questions asked them at each phase of the program (except during the summative evaluation when a group session affords the instructors the opportunity to benefit from each others' experiences) are most beneficial, useful and truthful when we ask these questions on an individual basis.

As was mentioned earlier, we have found that it is beneficial to use a group session to discuss the critical issues of the conceptualization and follow-up and transition phases. Group sessions might also be an efficient technique for explaining the critical issues of all of the other phases of the program. We decided to explain these issues on a one-to-one basis because of the difficulty of getting the participating instructors together. Explaining these issues to them individually proved to be beneficial in that we could individualize our presentation to each instructor and help him or her understand these issues. Explaining this information on an individual basis was also productive in that it provided an effective introduction and closure for the critical questions at each phase.

**3. Utilizing Communication Skills.**

The third general issue to address when involving instructors in all phases of a program is the importance of effective communication skills on the part of the researchers. Employing "active listening" techniques; avoiding "yes - no" questions (which result in "yes - no" answers); and avoiding judgemental, defensive, or emotional reactions is critical to facilitating truthful, accurate, and therefore, meaningful instructor involvement.

### Issue 3: Training Required for Instructor Personnel to Maximize Student Acquisition of Identified Skills

Our experience indicates that in order for an instructor to be able to explain a concept or strategy to a student, he or she must have experienced some past success in applying the concept or strategy. In order to provide instructors with this type of experience, formative evaluation can be structured such that instructors read through the materials as if they were students completing all of the exercises and questions. After meeting with the researcher and individually answering the critical questions for the formative evaluation, all of the participating instructors meet in a group with the researcher to discuss the materials, discuss how and why the materials work, expand on the concepts and strategies, demonstrate other applications, and generate new examples.

Another useful technique for helping instructors maximize student acquisition of specific skills is to establish periodic—perhaps weekly—meetings with instructors to discuss any problems, insights, or successes they have experienced. Again, the emphasis is on sharing, discussing, and exchanging information among instructors and between instructors and researchers.

Discussing or reviewing with instructors the developmental needs and conflicts of the student population is a third effective technique for helping

effective, but also in an ability to individualize the materials in the program to meet the needs of various students in the classroom or learning center.

A fourth technique for helping instructors maximize student acquisition of specific skills is to help the instructor identify with the student. Having instructors complete unfinished sentences such as, "When I was a student I . . .," "My favorite instructor in school was. . .," and "If I were a student today, I . . ." can

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sensitize them to the feelings of their students, and this, in turn, can help them present the new skills and information to their students in relevant and meaningful ways.

### Issue 4: Instructor's Role in the Acquisition and Maintenance of Student Learning Strategies and Skills

Instructors generally can help students acquire and maintain new skills in six different ways:

First, instructors can help students apply the new skills to new situations,

also increase the amount of practice that students experience in using these new skills by creating new situations which call for the use of these skills.

Fourth, instructors can monitor the progress charts or maintenance charts that students are required to keep as part of the skill training. This insures not only that the students maintain these charts, but also allows the instructors to provide individual guidance to those students who need additional assistance in understanding and applying the new skills or

maintaining the charts.

Fifth, instructors can provide a very effective and consistent reward system for students participating in the new program. Again, personal contact is a strong force and can be used by instructors to motivate students.

Finally, instructors can make the new skills to be learned enjoyable, entertaining, and even profitable for their students. By calling out the unusual, the humorous, or even the "sexy" aspects of the new skills, instructors can help students easily and quickly remember the new skills.

Transitioning learning strategies research into practice was noted, at the beginning of this paper, to be an exercise in organizational change. An effective technique for catalyzing this change is to involve instructors in all phases of the program such that they internalize the program and view it as their own. The benefits of this type of instructor involvement far outweigh the costs. With a team-effort—"we" attitude—instructors and researchers can combine their expertise to produce effective skill training materials. Instructors can become learning strategies experts and provide a highly effective maintenance function. Finally, with a team-effort, instructors and researchers can transition learning strategies research into practice with a minimum amount of stress and conflict.

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instructors maximize student acquisition of specific skills. Although many instructors have studied these concepts in the past, it is often very beneficial to review those which are relevant and applicable to the student population being addressed. This can result in not only an understanding of why the program is important and potentially

demonstrate new applications, and provide new and different examples.

Second, instructors can model the new skills, showing students how they, as instructors, apply, implement, and make use of the new skills.

Third, instructors can remind students of how and when to use the new skills in new situations. They can

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