An Empirical Investigation of Leadership and Organizational Issues Associated with Sustaining a Successful School Renewal Initiative [1]

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Abstract

Reported are the findings of an investigation focusing on the identification of leadership and organizational factors associated with failure to sustain the success of an extensively research-based and well-implemented science-based integrated reading/language arts intervention (Science IDEAS) for upper elementary students in a large urban school system in the southeast. Identified are key leadership and organizational issues related to the initial failure to sustain and broaden the Districtwide adoption of the successful Science IDEAS intervention. Described are the elements of and the initial effects of implementing a multiphase scale up design specifically designed to support the re-implementation of the Science IDEAS intervention by establishing an organizational foundation that specifically addressed the leadership and organizational issues associated with both sustaining the success of and broadening the adoption of the Science IDEAS intervention by other elementary schools within a framework of cumulative school reform.

Over the past 20 or more years, an important emphasis in school renewal has been the identification of research-based (i.e., performance-validated) instructional programs that have a positive and consistent impact upon student achievement. Building upon this, a complementary research literature has begun to address the related issue of the conditions associated with whether or not programs whose initial implementations are successful are able to sustain their success on a long-term basis. For example, in a study of schools involved in the renewal process, Payne (1997, 2001) identified problematic elements of the social climate in urban schools which cumulatively undermined the implementation of effective renewal initiatives. Included among these were dysfunctional relationships among teachers, school administrators, and central administrators which ultimately interfered with the actual implementation of renewal programs-- even though all parties were substantially in agreement about goals and means. As Payne (1997) noted, in school reform, not only do highly effective programs often come and go with little lasting impact (e.g., Adams & Engelmann, 1996), but they are replaced by initiatives that have no established empirical validity (e.g., Carnine, 1995, 1997**;** Ellis, 2001). Related views have been expressed by Cuban (1990) and others.

The purpose of this paper is to report the findings of an investigation which focused on the identification of leadership and organizational factors associated with the failure to sustain the success of an extensively research-based and well-implemented science-based integrated reading/language arts intervention (*Science IDEAS*) for upper elementary (grades 3-5) students in a large urban school system in the southeast. In doing so, the paper consists of five sections. First described is the *Science IDEAS* intervention, the evidence supporting its' effectiveness, and the context in which it was successfully implemented over a multiyear period. Second, overviewed are the key dynamics of the organizational framework which led first to its abandonment and then its subsequent re-adoption. Third, outlined are the primary elements of a multiphase scale up design designed to establish an organizational infrastructure that addresses the key leadership and organizational issues that led to its abandonment. Fourth, presented are preliminary results of the initial years' implementation of the multiphase strategy. And, fifth, offered are implications for enhancing the strength of school reform processes.

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Overview of the Science IDEAS Model and the Implementation Context

This section overviews the *Science IDEAS* model, research evidence, and the implementation context as a basis for understanding how the focus of the present study addresses systemic issues in school reform.

Science IDEAS model. In the *Science IDEAS* model, (e.g., Romance & Vitale, 1992, 2001; Vitale & Romance, 2000) students in grades 3-5 are taught science in daily 2-hour blocks that replace traditional basal reading/language arts instruction. In focusing on the development of an in-depth understanding of science concepts (e.g., learning more about what is being learned), students engage in a variety of activities within and across daily lessons that include hands-on experiments/projects, reading text/trade/internet materials, writing/journaling, and constructing and using propositional concept maps for knowledge representation. Thus, within a broad integrated curricular framework of learning science, students are also able to develop transferable reading comprehension and writing skills.

Multiyear research findings. Romance and Vitale (2001) have shown that the *Science IDEAS* intervention consistently resulted in significantly higher science and reading comprehension achievement as measured by nationally-normed standardized tests. In the domain of affective outcomes, *IDEAS* students also displayed more positive attitudes toward and greater self-confidence in learning science and reading. Moreover, the pattern of achievement and affective effects were consistent for both average, above average, and low-SES minority students.

With regard to implementation, evaluation findings revealed that *Science IDEAS* classrooms were dynamic, highly interactive, and affectively positive. Complementary evaluations by teachers consistently showed that the professional development support for the *Science IDEAS* intervention was highly effective and reported that the integrated *Science IDEAS* model was far easier to implement than their traditional separate reading, language arts, and science curricula. Finally, informal reports from involved principals and central administrators indicated they were highly positive toward the intervention.

Implementation context. The context for the *Science IDEAS* implementation was a large urban school system in the southeast. The initial implementation (Romance & Vitale, 1992) was in all grade 4 classrooms in an average-achieving school. In subsequent years, the implementation expanded to over 60 teachers and involved over 1200 students (see Romance & Vitale, 2001). As the project expanded and teachers were added, two schools also adopted the intervention on a schoolwide basis in grades 3-5. In all cases, schools and teachers were volunteers.

Initially, the project was funded by a small amount of state funds. In later years, as the project expanded, it was funded through a combination of local school funds for at-risk students and through a state-supported regional center (Region V Area Center for Educational Enhancement-ACEE).

Organizational Dynamics Relating to the Abandonment and Re-Initiation of the Science IDEAS Model

Consistent with the general findings reported by Payne (1997, 2001), virtually all of the involved professionals (e.g., teachers, principals, central administrators) viewed the *Science IDEAS* model as effective and considered themselves to be supportive. However, after the cumulative expansion of the intervention over a 5-year period, interest in and commitment to it gradually diminished over the following 4 years until it was used by only a small number of teachers. With this in mind, the present study has important implications for school reform relating to school leadership and organization issues as to why the model failed to sustain success (see Marsh & LeFever, 1997) and how these issues are being addressed through a more comprehensive multiphase scale up design.

Developing a new strategy for systemically implementing the Science IDEAS model as a renewal initiative. During the past year, the state-supported ACEE responded to a demand by central administrators and principals for the re-implementation of the *Science IDEAS* model in their schools. The major goals associated with the new implementation of the *Science IDEAS* model focused directly upon developing the enhanced leadership and organizational infrastructure that research (reported below) identified as necessary for sustained success rather than demonstrating the effectiveness of the model per se. Thus, while the implementation requirements, professional development components, and strong evaluation used in the original application of the model were continued, the present initiative also includes enhancements that are necessary for it to be sufficiently scaled up to have a systemic long-term impact on achievement standards and expectations in district schools.

To identify and analyze the reasons regarding the failure of the *Science IDEAS* model to sustain success, a mixed-method design was used to obtain perceptions from three primary data sources associated

with the original implementation: teachers (N= 50) who participated in the original *Science IDEAS* multi-year implementation, principals (N=18) whose teachers had used the *IDEAS* model, and central administrators (N=8) during the multi-year *IDEAS* implementation. Data for teachers consisted of a general survey assessing their experiences with the model, how long they continued to use it after the end of the formal multi-year project (including reasons they stopped), and whether they would like to begin using it again. In addition, informal interviews were conducted with a small sample of past-IDEAS teachers to obtain greater in-depth information regarding the above issues. Data from past-IDEAS principals and central administrators also were obtained informally, with individuals interviewed either in person or on the telephone.

Teachers responding to the survey reported that they taught the *Science IDEAS* intervention for an average of 4.3 years in the following grade ranges: grade 2 (N=8), grade 3 (N=19), grade 4 (N=36), and grade 5 (N=26). In general, the teacher responses were positive and consistent with previous evaluative findings reported by Romance and Vitale (2001) and Vitale (1999) (e.g., 90 percent or more respondents indicated that *Science IDEAS* was effective in terms of academic and affective outcomes, practical to implement, and was well supported through professional development). Although teachers (88 percent) indicated their principals were supportive, much fewer (32 percent) reported that many principals did have a good understanding of it. In terms of present utilization of six key Science IDEAS strategies in their classrooms, the average percentage of teachers utilizing the individual strategies was only 50 percent (i.e., for a given strategy such as concept mapping in reading comprehension, approximately 50 percent of the teachers indicated they used it in their classrooms).

Overall, teachers overwhelmingly (96 percent) indicated that they would want to use *Science IDEAS* in their schools again, with two-thirds (66 percent) reporting that they would be willing to consider moving to a model school at which all teachers in grades 3-5 were using the model. Finally, and not surprisingly, teachers overwhelmingly (percentages ranged from 90- 96) endorsed as *Necessary* (vs. *Important but not necessary)* key professional development elements of the implementation that included training to enhance science knowledge, learning new hands-on activities, using instructional strategies for integrating science, reading, and writing, and ensuring the availability of supplementary science reading materials. Finally, teachers rated as important having access to *IDEAS* resource specialists, establishing professional networks, and ensuring that school administrators have a sound understanding of the intervention.

The results of informal teacher interviews paralleled those of the survey. The majority reported that they were not using the IDEAS model, although a majority indicated that they regularly used some *IDEAS* strategies in their teaching. The majority also indicated that the reason they stopped using the model was due to principal requirements that more standard reading/language arts curriculum be used in their school.

Results from principals indicated that changing district and state testing requirements made it difficult or impossible to continue the *Science IDEAS* model. Central administrators reported that they assumed that the *IDEAS* project was continuing or expanding (primarily because at one time it had been funded as a school renewal initiative on a continuing basis.) Many of these administrators indicated they were surprised to see that the use of the *IDEAS* model had diminished rather than expanded into greater numbers of schools even though they recognized that the *IDEAS* model was not explicitly part of any priority district instructional initiative.

An overall qualitative finding that emerged from the study was based on the fact that the *Science IDEAS* model had always been supported by funds external to the district or by funds that were part of more general multi-faceted local renewal programs (e.g., at risk initiatives). This finding was that the *Science IDEAS* model as a specific *instructional* initiative had no independent identity toward which the system could focus leadership or organizational attention. More specifically, Science IDEAS was thought about only on an informal basis with no explicit organizational presence. And, as a result, there was no emphasis on the systemic capacity development that would support either schools using the model or efforts of new schools that wanted to implement it.

The most important conclusion from the study was that the failure of the model to sustain success was not due to lack of perceived effectiveness, poor implementation, or a negative view of the *IDEAS* model by different school personnel. Rather, the failure to sustain success was due to the lack of an organizational infrastructure that focused on the model as an explicit instructional alternative for addressing

priority school goals while maintaining ongoing communications among different levels of school personnel regarding the status of the model's implementation and effectiveness in furthering the accomplishment of those achievement goals. Based on the study, the failure of the Science IDEAS model to sustain success was that it had no systemic organizational presence; that is, it had become lost as an organizational entity.

A Multiphase Scale Up Design to Develop an Organizational Infrastructure for Implementing the Science IDEAS Intervention

The study revealing the preceding findings was conducted in response to the request from school personnel to re-initiate the *Science IDEAS* model. These findings identified specific organizational elements related to the failure of the *Science IDEAS* model to sustain success. In developing a comprehensive implementation plan to address these issues, the investigators explored the emerging literature relating to the issue of scale up in educational reform. This section first overviews the representative scale up literature and then describes the multiphase scale up design developed to implement the *Science IDEAS* model.

Scale up literature related to the optimal implementation of the Science IDEAS model. The present *Science IDEAS* initiative (which began in 2001-2002) is designed to operate within a leadership and organizational framework that focuses around two core concepts that have begun to be recognized as keys for sustained renewal: scale up and capacity development. The scale up lierature (e.g., Ball & Cohen, 1999; Tyack & Cuban, 1995) addresses the fact that the development of high-quality instructional interventions seldom (if ever) includes the explicit means for systemically broadening their application or adoption. In this regard, the development of the capacity of the system (e.g., King & Newmann, 2000) to implement and manage the intervention (i.e., capacity development) is a crucial part of the key leadership and organizational issues necessary for expanding the scope of an intervention (e.g., Massell, 1998).

One critical issue relating to the development of a sound scale up design that is important to note is that of *scalability.* The idea underlying this concept is that as entities expand from small to large, not only does the relative importance of different aspects of them change; but also some new aspects must often be added for scale up to occur. An example by (Paulos, 2001)) illustrates the issue by supposing that a person is scaled up proportionally from 6 feet to 30 feet (a factor of 5). Under such a scale up, the person's volume would expand by 5^3. However, the capacity of the person's legs to support the person's weight would only increase by 5^2. As a result, since the person's legs could not support the new volume/weight, either some additional prosthetic device would be necessary or the capacity of the legs will have to be strengthened to be proportionally greater than those in the original. In effect, the issue of scalability is that under scale up conditions, some elements of the original model must be expanded and some new elements must be added. In the present case, it seemed clear that initiating and scaling up the implementation of the *Science IDEAS* model would require adding organizational elements that focused on and supported administrative leadership at all levels.

A multiphase scale up design for systemic implementation of the Science IDEAS model. Figures 1, 2, and 3 overview the key elements that serve as a foundation of the multiphase scale

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up strategy developed and adopted. As Figure 1 illustrates, scale up is optimally driven by an evidence-based decisionmaking process. Within this context, scale up can be viewed from two complementary perspectives- either as a process or as an outcome goal. As a process, scale up emphasizes the development of a capacity that allows the transfer of implementation responsibility from the project research staff to the appropriate school personnel. As an outcome, scale up represents the fact that the focus of such transferability could be upon sustaining long term success or expanding to new sites. Finally, Figure 1 also overviews the organizational levels that should be involved in different phases of the scale up process.

Figure 2 represents the dynamic nature of the scale up process itself. As Figure 2 shows, a systemic scale up infrastructure driven by evidence-based decisionmaking is a *logical* requirement for insuring its stability and effectiveness. Complementing Figures 1 and 2, Figure 3 shows how the major operations of the multiphase scale up design used for *Science IDEAS* can be considered as a general coaching strategy that provides the means for transferring implementation responsibilities to school personnel as a means of sustaining success on a long term basis.

With the preceding in mind, the multiphase aspects of the specific *Science IDEAS* scale up design can be summarized as follows:

- *Intervention Phasing*. The application of the complete *Science IDEAS* model by teachers is accomplished through a phase-in process. First, teachers first use a variety of activities to teach science concepts for a 2-hour daily time-frame. Then, as they gain proficiency, additional elements of the model are adopted sequentially as elaborative expansions of the elements they have been previously using.
- *Implementation Phasing*. Schoolwide adoptions of the *Science IDEAS* model follow an explicit sequence. First, potential new sites observe *IDEAS* classrooms in model schools and then receive initial implementation training. Subsequently, teachers and principals (with the involvement of appropriate central staff) receive in-depth summer training and follow-up support during the school year. This pattern is repeated so that each school involved works toward becoming a model school at the end of a 2 year period.
- *Infrastructure Phasing*. Initial implementation responsibility is transferred from project staff to school staff at appropriate levels. After reaching full implementation (and model school status), the responsibility for sustaining the implementation is transferred to appropriate school personnel (see Figure 3). Once school personnel are able to sustain success independently, then the responsibility for providing the leadership and support for new sites is transferred.

As described above, the present (and new) implementation of the *Science IDEAS* model has been enhanced to include (a) a formal "buy-in" of the model and its instructional goals by central administrators within an evidence-based decisionmaking framework, (b) the establishment of model IDEAS schools that, as established, provide an expanding number of professional development sites for principals and teachers from other schools wishing to adopt the model, and (c) a technologically-supported network through which teachers can communicate directly regarding teaching problems and ideas, and administrative personnel can interact directly regarding the status and effectiveness of the implementation. In general, perspectives from the literature on scaling-up and capacity development in conjunction with the specific findings regarding the previous *IDEAS* implementation are an important focus for the development of a substantially enhanced implementation model that has a greater chance to result in long-term sustainability and expansion.

Preliminary Results of the Multiphase Science IDEAS Scale Up Design

The new multiphase scale up design has proven highly effective thus far. By the end of the 2001-2002 school year, a total of four *Science IDEAS* model schools implementing the complete model schoolwide in grades 3-5 will have been initiated in two large school systems (Broward, Palm Beach, FL). In turn, these schools, as they develop through the multiphase scale up implementation, will be prepared to serve as future sites that support professional development for new schools desiring to adopt the model. In addition, collaborative working relationships with each school system have insured a continuing access to classroom implementation and student performance data in support of the ongoing management of the project itself- a key element for evidence-based decisionmaking. Finally, and most importantly, project staff, in working with principals and involved central staff (e.g., area directors, curriculum supervisors), have been successful in promoting awareness and communication of how the model is being used at different schools, including the associated support issues and heightened classroom achievement expectations of students. Overall, the multiphase scale up design has overcome the major problems identified with the failure to sustain success of the original *IDEAS* intervention.

Implications for Systemically Improving Educational Reform Standards

The multiphase scale up design has significant implications for educational reform standards. Included among these is the perspective that for sustaining success on a long term basis, the active involvement of all levels of school personnel must be addressed. Also, the idea that the effectiveness of the innovation in improving student achievement is a necessary but not sufficient element for strong reform. In addition, to accomplish long term sustainability and expansion, the means for transfer of responsibility (e.g., a coaching strategy in the present project) should be employed to develop the infrastructure capacity

of appropriate school system personnel to support both the implementation of the model and its expansion to new sites while operating within an evidence-based decisionmaking framework.

Set in the context of large urban school systems, this paper suggests a scenario of how significant issues in the school reform literature should be addressed systemically. In effect, a well described model whose published research results (e.g., Romance & Vitale, 1992, 2001) documented its effectiveness was unable to sustain success despite a favorable attitude toward it by teachers, principals, and central administrators. With this in mind, this paper amplifies the importance of addressing the elements of scale-up and capacity development for school reform through systemic leadership and organizational initiatives framed within an explicit evidence-based decisionmaking framework. The findings and resulting enhancements associated with the more comprehensive implementation of the model that address the critical issue of sustaining success offer a significant contribution to the evolving framework for school reform. In fact, the systemic capacity to cumulatively sustain the success of effective interventions and use such interventions as foundations for further progress is a necessary requirement for successful school reform.

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