Change Processes and Strategies at the Local Level

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"Reformers have the idea that change can be achieved by brute sanity."
George Bernard Shaw

The search for effective strategies for bringing about school improvements is a tantalizing affair. On the one hand, research in a number of areas on school effectiveness, classroom effectiveness, staff development, leadership, and implementation is increasingly convergent and detailed in identifying factors related to improvement, and the findings make common sense. On the other hand, we know that deliberately attempting change is a complex, dilemma-ridden, technical, sociopolitical process. Looked at one day, in one setting, successful educational change seems so sensible and straightforward; on another day, in another situation, improvement cannot be attained with the most sophisticated efforts. Change is at once simple and complex, and therein lies its fascination.

The purpose of this paper is to consider change processes at the school building level in order to formulate a number of locally based strategies (at the school and district levels) that hold some promise for significantly improving schools and classrooms. The intention is to suggest change strategy implications arising from the effective schools research. To do this we must (a) recognize the consistent, powerful messages in this body of research, (b) recognize the limitations of this research vis-a`-vis knowledge about change processes, and (c) draw on other literature that does provide data and insights into local district and school improvement processes. Consider-

able attention in the paper is devoted to explaining how change processes actually work because these processes are not well described or understood in the effective schools literature, and such an understanding is a necessary precondition for designing effective strategies for improvement.

The analysis is developed in three parts. The first examines through illustration what is known about successful change processes at the school and classroom levels. The emphasis is on the actual processes whereby individuals in a group setting change. In the second section, I discuss the limitations of knowledge about how to bring about change, as well as the limits of moving from knowledge to strategies for using that knowledge. In the final section, I consider alternative strategies and ideas within strategies that local personnel interested in accomplishing improvements at the school level might employ.

Change processes within schools

Despite a great deal of very good research on factors related to school improvement, we do not have much specific knowledge about *how and why* improvement occurs. (For reviews of this research see the following selected sources: on school effectiveness, Cohen [1983]; Good & Brophy [in press]; Purkey & Smith [1983]; on classroom effectiveness, Brophy [1983]; on staff development, Joyce & Showers [1980]; on principal leadership, Dwyer, Lee, Rowan & Bossert [1983]; Leithwood & Montgomery [1982]; on implementation, Crandall et al. [1983]; Fullan [1982.] The simple but powerful phrase "change is a process, not an event" connotes that something is happening over a period of time to transform individuals and situations (Hall & Loucks 1977). The question in this section is, What do we really know about the detailed processes of transformation within schools? When one describes an effective school and identifies the factors associated with its success, what information is necessary to understand how it got that way?

The vast majority of research on school improvement ignores the specific dynamics of change, but some studies describe the change process qua process better than others. Studies that trace change over a period of time (even short periods) are essential to inferring how people change. Research needs to go beyond theories of change (what factors explain change) to theories of changing (how change occurs, and how to use this new knowledge).

To illustrate what might be called an emerging theory of change processes within schools, I will draw on four recent studies of successful change that are particularly revealing of the nature of the process at work: Huberman's (1981) case study of the Exemplary Center for Reading Instruction (ECRI), Stallings's (1980) program on improving the teaching of reading in secondary school classrooms, Showers's (1983a, 1983b) work on the transfer of training, and Little's (1981) research on school norms and school success. None of these studies comes from the "effective schools" research, which indicates that this latter research has not examined processes of change. Some very recent work moves in this direction (e.g., Clark & McCarthy 1983) but still does not analyze the processes at work. In the change literature, Huberman and Crandall (1983) and Huberman and Miles (1984) are especially revealing and detailed sources of description of successful change processes at the local level (in the section entitled "Strategies for Improving," I draw more specifically on Huberman and Crandall). The main purpose in describing these four cases is not to generate a complete list of factors associated with improvement but rather to provide some insight into how successful change processes might operate at the individual teacher level in a school context.

Huberman's study of ECRI

ECRI is a structured reading instruction program available through the Na-

tional Diffusion Network. Huberman (1981) conducted a case study of one school district's use of the program and found widespread implementation in classrooms (see also Huberman & Crandall 1983). Two of the explanatory factors singled out were "the quality and amount of technical assistance" and "sustained central office and building level support" (p. iii). The district arranged for certain principals and teachers to receive training at the developer's center. All teacher users received training and follow-up assistance from the principal and other helping teachers who had received the initial training. Huberman (1981, p. 68) comments, "It was also decided that ongoing assistance should be provided, hence the idea of a 'helping teacher' who would give workshops, demonstrate the ECRI techniques, provide supplies and materials, chair a monthly inservice meeting between users, provide on-demand consultancy."

The developmental nature of learning how to do something new was recognized by a policy of easing teachers into ECRI rather than expecting comprehensive implementation at once. Moreover, Huberman found that early difficulties were typical: "Teachers, trainers and administrators all talk of a 'difficult,' 'overwhelming,' sometimes 'humiliating' experience during the first six months, and for some during the initial two years" (p.81). He notes that almost every respondent attributed the survival of ECRI during this period to the strong administrative support and the helping teacher. Activities mentioned as valuable included frequent in-service meetings "during which teachers exchange tips, war stories, encouragements, complaints and formulated requests to the helping teacher" (pp. 70-71).

As Huberman describes it, the initial 6 months is a period of high anxiety and confusion. After some settling down, there still remains a significant period of relating the specific behaviors to the underlying rationale of the new program. After 6 months, "there is cognitive mastering over the individual pieces of ECRI, but little sense of the integration of the separate parts or, more globally, why certain skills or exercises are related to specific outcomes. Concern for understanding the structure and rationale of the program grows as behavioral mastery over its parts is achieved" (p. 91).

In other words, changes in attitudes, beliefs, and understanding tend to follow rather than precede changes in behavior.

Stallings: a secondary school reading program

Stallings (1980, 1981) carried out a four-phase program in several districts in California, focusing on training secondary school teachers to improve reading skills of students. In phase 1 the researchers observed in 46 classrooms to examine the relation between what teachers did to address reading problems and what students achieved. The result of this phase was the identification of specific instructional approaches that seemed to work. In phase 2, the researchers used findings from phase 1 to work with 51 teachers; 26 were trained, and 25 (the control group) received training only at the end of the experimental period. In phase 3, teachers were trained to conduct workshops for other teachers in the district. In phase 4, selected teachers were trained to act as leaders of training programs in their own districts.

The 26 teachers who were trained attended five workshops, held 1 week apart. Using pretest and posttest data, the authors found that the teachers who were trained did use the instructional activities and did achieve greater gains in student reading ability over the year. Of the 31 criterion variables (measuring the implementation of specific instructional activities), the trained teachers changed over the school year on 25, while the control teachers changed on only three. Phase 3 was interesting because it allowed comparison

of the effectiveness of workshops led by teachers with workshops led by the project leaders. The authors found that teacher-led groups performed as well as groups led by the project leaders. (Both groups implemented 17 of the 26 criterion activities used as indicators.)

Stallings (1981) characterized the approach as a "staff development mastery learning model" with four components: pretest (observe teachers, start where they are), inform (link theory, practice, and teacher experience, provide practical examples), organize and guide practice (provide conceptual units of behaviors to change, support, assess, provide feedback, integrate), and posttest (observe and provide feedback to teachers and trainers).

Stallings's description does not provide a clear idea of what was happening between workshops-that is, during the process- though it offers some glimpses. For example, after the first session, each succeeding session started with the questions, "What did you try last week?" and "How did it work?" If a teacher's attempt did not succeed, other teachers offered suggestions of methods they used for achieving the particular objective. At the end of the session, teachers selected another behavior from the profile to try and were asked to read some background material.

In addition to the classroom and direct training variables influencing success, Stallings and Mohlman (1981) examined several school-level variables in eight schools. They found that teachers changed their behavior more in schools where the principal was supportive and where the school policy was clear, consistently enforced, and arrived at collaboratively. Even without attempting to influence these school variables (something that could be done in future attempts to implement the model), the treatment group achieved 6 months more gain in student reading scores than the control group.

Showers's program of coaching and transfer of training

In reviewing literature on in-service education, Joyce and Showers (1980) concluded that the following five components were essential for fundamental change: theory, demonstration, practice, feedback, and coaching. Although they did not provide specific examples of how these elements actually worked in practice, one can intuitively relate them to the previous two case examples. That is, these successful change processes consisted of teachers interacting and learning about the underlying theoretical principles of an innovation, seeing it demonstrated, practicing it, and obtaining feedback and ongoing coaching or support.

Showers (1983a, 1983b) designed a training application based on the above principles in order to test and specify them. Other experiments that reinforce Showers' findings are Sharan and Hertz-Lazarowitz (1982) and Mohlman-Sparks (1983). Showers (1983a, p.1) notes that the mastery of a new teaching approach requires the teacher "to think differently, organize instruction in fresh ways, and help children adapt to new approaches to teaching."

In the experiment reported, 17 junior high language arts and social studies teachers were trained for 21 hours in three models of teaching during a 7-week period (Showers 1983a, 1983b). Following initial training, the sample was randomly assigned to a coaching treatment group ($N = 9$) and a control group ($N = 8$). Coaching is conceived by Showers to combine several elements: providing companionship, giving technical feedback, and analyzing application. Coached teachers were observed once a week for 5 weeks and after each observation met with a consultant for a coaching conference. One session provided opportunities for teachers to share specific lessons. All teachers were asked to "transfer" their learning by pre-

paring and teaching a lesson using the same set of materials but receiving no assistance with respect to instructional strategies. Transfer scores were derived through observation with respect to (1) teachers' technical competence in the use of models, (2) ratings of the appropriateness of the model used given the objectives, and (3) ratings of the teachers' ability to teach the model to students as indicated by students' responses (Showers 1983a, 1983b). Transfer of training scores for the coached teachers showed a mean of 11.67 compared with 5.75 for uncoached teachers.

Showers (1983a, p. 11), makes an interesting observation: "During teaching of the final unit, coached teachers spent approximately twice as much instructional time at the conceptual and theoretical levels of information processing as did uncoached teachers." Recall that uncoached teachers received the same initial training as coached teachers. Factors that contributed to success included "practice with new models of teaching, successful experiences with the trained strategies, and understanding the requirements of transfer" (p. 16). Showers (1983b, p. 8) corroborates one of Huberman's (1981) main findings that all teachers were initially "stymied by the discomfort of using a strategy awkwardly and unskillfully" and that most of the uncoached teachers did not get beyond this "difficulty of fit" state.

Showers also notes that the design was individualistic rather than organizational in focus, and that for the most part little support existed in the schools for the development of new teaching behaviors. She concludes that for coaching to occur on a broad scale, peer coaches will have to be trained. Showers (1983a, p.19) observes, "Peer coaching will necessitate some organizational changes for most schools, if time for observation and conferencing of teachers by teachers is to be possible. Furthermore, the establishment of conditions for peer coaching will necessitate the building of school norms which encourage and legitimize ongoing collegial attention to curriculum and instruction."

Little's study of six urban schools

Little's (1981) in-depth research in six schools is significant because it focuses on the school norms and work conditions conducive to staff development and improvement, factors that Showers and Stallings cited as important but missing or uneven in the schools in which they worked. Little (1981, pp.12-13, her emphases) provides a concise summary of the role of these school-level factors:

> School improvement is most surely and thoroughly achieved when:
>
> Teachers engage in frequent, continuous and increasingly concrete and precise *talk* about teaching practice (as distinct from teacher characteristics and failings, the social lives of teachers, the foibles and failures of students and their families, and the unfortunate demands of society on the school). By such talk, teachers build up a shared language adequate to the complexity of teaching, capable of distinguishing one practice and its virtue from another. . . .
>
> Teachers and administrators frequently *observe* each other teaching, and provide each other with useful (if potentially frightening) evaluations of their teaching. Only such observation and feedback can provide shared *referents* for the shared language of teaching, and both demand and provide the precision and concreteness which makes the talk about teaching useful.
>
> Teachers and administrators *plan, design, research, evaluate and prepare teaching materials together.* The most prescient observations remain academic ("just theory") without the machinery to act on them. By joint work on materials, teachers and administrators share the considerable burden of development required by long-term improvement, confirm their emerging understanding of their approach, and make rising standards for their work attainable by them and by their students.
>
> Teachers and administrators *teach each other* the practice of teaching.

Two of the six schools in Little's study evidence a high percentage of these practices.

Summary

To summarize, change at the individual level is a process whereby individuals alter their ways of *thinking* and *doing (e.g.,* teaching in this case). It is a process of developing new *skills* and, above all, of finding *meaning* and *satisfaction* in new ways of doing things (see Fullan 1982; Marris 1975). The four case examples elaborate on this process in mutually reinforcing ways in that they describe or imply that (1) change takes place over time; (2) the initial stages of any significant change *always* involve anxiety and uncertainty; (3) ongoing technical assistance and psychological support assistance are crucial if the anxiety is to be coped with; (4) change involves learning new skills through practice and feedback- it is incremental and developmental; (5) the most fundamental breakthrough occurs when people can cognitively understand the underlying conception and rationale with respect to "why this new way works better"; (6) organizational conditions within the school (peer norms, adminstrative leadership) and in relation to the school (e.g., external administrative support and technical help) make it more or less likely that the process will succeed; and (7) successful change involves pressure, but it is pressure through *interaction* with peers and other technical and administrative leaders.

In short, it is necessary to understand the psychological dynamics and interactions occurring between individuals in schools as they experience change before we can decide which strategies are most effective.

Limitations to strategies for improvement

There are limitations in our understanding of what makes effective schools work, and these are further compounded by complexities in transferring the understandings we do have to other settings. It is difficult to grasp the range of problems associated with school improvement because the potential problems are numerous and diverse. That is, they occur at different levels of abstraction; some are internal to understanding examples of success, some are related to designing effective strategies for new situations, others are external to the particular situation at hand, and most are related to the simplicity-complexity paradox that characterizes social processes of change. In this section, I discuss briefly six types of limitations on our ability to bring about improvement through deliberate means: unsolvable problems; the nature and narrowness of goals; demographics; abstraction, misunderstanding, and incompleteness; transfer/sequencing; and subtle combinations. I do not claim that the list is complete, but it is far-ranging and includes at least major aspects that people contemplating or engaging in change should carefully consider. I contend that it is essential to understand these issues before initiating improvement programs.

Unsolvable Problems

There are two reasons some problems may be unsolvable. First, there may be certain problems for which no adequate solutions exist. For example, although there has been substantial progress in the past decade in specifying the nature of effective classrooms and schools (primarily urban, public schools) that promote achievement in basic skills, there is still a long way to go in understanding and developing effective instructional programs for what Doyle (1983, p. 170) calls "academic work": "Studies of the cognitive processes underlying academic work have revealed the enormously complex character of the operations and decisions that academic competence entails, a complexity that is often overlooked when the goals of school are discussed."

The effective schools research demonstrates that some goals (usually in read-

ing and mathematics measured by standardized tests) can be addressed relatively successfully; this does not necessarily mean that other higher-order cognitive and personal-social development goals can be achieved. Rutter, Maugham, Mortimer, Ouston, and Smith (1979), Weiss, Janvier, and Hawkins (1982), and Wynne (1983) do address other goals, but this extension into other areas is only at the early stages.

Thus, teaching basic reading and mathematics is one thing; teaching students to think abstractly, analyze and solve problems, and write effectively is another; accomplishing effective special education programs is still another. There are programs available that address a broad range of educational goals, but many may not yet be sufficiently developed to address the problems adequately.

Second, in their desire to bring about needed changes, policymakers frequently neglect or seriously underestimate issues of resources and feasibility relative to implementation. Sarason (1972) refers to this phenomenon as "the myth of unlimited resources," Wise (1977) as "the hyperrationalization of reform." It is not that policymakers believe that there are unlimited resources but that many policy solutions to educational problems *fail to consider* what would be realistically needed for the policy to work. For example, to say that effective schools depend on instructionally active principals is a far cry from having such principals in the majority of schools. (And this is only one factor.) I refer to this general problem as unsolvable because there are not, in fact, enough resources available to address even the major policies and goals that are already on the books. As with so many other aspects of the change process, factors working at cross-purposes must be reconciled high expectations and limited resources.

The narrowness of goals

Another problem concerns the total set of goals for which the school is responsi-ble. Devoting resources and attention to one or two objectives is certainly a good way to improve performance in those areas. But if this is done without consideration of other domains, it is likely that the latter will suffer. Schools have a number of major goals, and any improvement effort should explicitly consider not only the areas that improvement projects focus on but also the implications (i.e., unintended consequences) of improvement for other domains.

Demographics

Research on school effectiveness is also limited by the kinds of populations studied (Cohen 1983; Purkey & Smith 1983; Rowan, Bossert, & Dwyer 1983). Much of the research is based on small samples involving at least quasi-volunteer populations in inner-city elementary schools that already have effective programs in existence (as distinct from studies that design and introduce new programs). The performance of the effective schools on a small range of goals is then compared with that of inferior schools (low-scoring rather than average-scoring schools). There are a few exceptions: Neufeld, Farrar, and Miles (1983) (see also Farrar, Neufeld, & Miles 1983; Miles, Farrar, & Neufeld 1983) focused on effectiveness in secondary schools, as did Rutter et al. (1979) and Stallings (1981). Clark and McCarthy (1983) and Eubanks and Levine (1983) report on effective schools "projects" intended to bring about improvement through design (as distinct from identifying naturally occurring examples). These studies are exceptions, however. We do not know enough about community variables, differences in teacher populations, rural and suburban settings, large schools, longitudinal attempts at deliberate change, broader goals and measures of effectiveness, and the like. These limitations are especially critical for the remaining three problem areas: abstraction, transfer/sequencing, and subtle combinations.

Abstraction, misunderstanding, and incompleteness

Effective schools research takes a highly complex phenomenon and represents it in a vastly simplified manner by citing factors such as strong administrative leadership focusing on instruction, high expectations for students, clear goals, an orderly atmosphere, a system for frequent monitoring of progress, ongoing staff training, and parent involvement as characteristics of effective schools.

I should like to raise three problems about understanding these findings sufficiently in order to use them in other situations. First, the factors are an *abstraction* across several situations. They have some generalizability, but at the expense of understanding fully any particular school context. For any specific situation other factors could dominate-a history of leadership instability, the relationship between teachers and the school board, an industrial strike in the community, and so on. Second, the factors represent *statistically significant* correlations rather than full explanations of results. The strength of the relationships should be examined as well as the relative contributions of different factors, and comparisons with a range of other schools (not just with ineffective schools) in different community settings should be made. (See Purkey & Smith [1983] and Good & Brophy [in press] for additional technical criticisms of school effectiveness research studies.)

Third, and above all, the existing research tells us almost nothing about how an effective school got that way; it tells us little about *the process of change.* We need to look at the issue of *causality.* In almost all cases, it is not known how a good school got to be one. How did the characteristics of effective schools evolve in a particular school's context? Did certain factors exist before others? How and why were these factors present? How did and do the factors affect each other over a period of time? To illustrate, most of this research aggre-

gates data at the school level. We do not, for example, have information on the differential success of classrooms within so-called effective or ineffective schools. We do not even have indirect data on the intraschool processes that influence individual classrooms in the effective schools. Moreover, each factor is a surrogate for a host of actions and interactions that make up its underlying meaning and impact.

Remember also that the majority of this research is on schools that somehow came to be effective, not ones that some group deliberately set out to improve. There are some recent descriptions of improvement projects (Clark & McCarthy 1983; Eubanks & Levine 1983) that are more specific about the phases and elements of programs. Even these potentially more relevant projects, however, do not provide much information on the process-the dynamics of selecting schools, the obstacles encountered, how problems were resolved. By contrast, for an excellent illustration of recreating and tracing complex causal chains in the school innovation process, see Huberman and Miles (1984). Similarly, the purpose of the first section was to suggest and elaborate on some plausible descriptions and explanations of the process of improvement.

In sum, understanding school success involves knowing *how* factors operate in a particular context rather than merely listing factors associated with higher student achievement.

Transfer/sequencing

Even if we possessed quite complete knowledge about what causes improvement and how it occurs (which, as the previous point indicates, we do not), it would still be very difficult to transfer that knowledge to other situations because knowing something is critical in one context and implementing it in another are two different things. In the 1970s the question was, How do I implement X or Y program? The response was, Build better implementation

plans, taking into account factors A, B, C, and so forth. In the 1980s the question (ironically) has become, How do I implement the implementation plan? Implementing improvement plans is problematic because *(a)* people may resist (unwillingness), or *(b)* people may not have the skills (inability), and *(c)* more generally, implementing a new program of improvement is a complex process in its own right, each potential solution representing a whole new set of "hows." It is difficult to implement any one of the major factors known to affect improvement; it is, of course, much more problematic to attempt to alter and contend simultaneously with several factors that affect one another. What works in one situation may not work in another, and there is not much research available on issues related to such questions as where to start, how to sequence events, and what approaches might work under what conditions.

Subtle combinations

The last limitation is an overriding one. It concerns the simplicity-complexity paradox of change. On the one hand, examples of successful improvement make common sense. They can be explained by reference to a small number of key variables. It is obvious that they work, although how they work is not necessarily clear. On the other hand, the intrinsic dilemmas in the change process, coupled with the intractability of some factors, make successful change a highly complex and subtle social process. Effective approaches to managing change call for combining and balancing factors that do not apparently go together-simultaneous simplicity-complexity, looseness-tightness, strong leadership-participation (or simultaneous bottom up-top downness), fidelity-adaptivity, and evaluation-nonevaluation. More than anything else, effective strategies for improvement require an understanding of the process, a way of thinking that cannot be captured in any list of steps or phases

to be followed. I will pursue these distinctions in the next section in the course of making some specific recommendations for developing effective strategies for school improvement.

Strategies for improvement

Just as there are many different ways to fail, there is more than one way to succeed (although as with any skilled performance there are a nearly infinite number of ways to fail but a much more sharply limited number of ways to succeed). This section is divided into two parts. The first discusses some elements that are common to success; that is, it describes what an effective school is. The second part considers alternative strategies or leverage points that might be used for making schools more effective. The focus is on recommendations for local districts and individual schools.

What effective schools are

My main interest is not in carrying out yet another review of effective schools (see Good & Brophy, in press). I do however, want to describe what an effective school is in order to highlight aspects of process that have been neglected. Following a division that Purkey and Smith (1983) suggest (but not their precise list), I find it useful to divide the factors into two groups: the first group is a list of eight organization variables that are typical of the characteristics of effective schools described in the literature; the second group consists of four process variables that have been largely overlooked or inadequately understood. Taken together, these 12 factors identify in a more systematic manner the theoretical framework that underlies the successful case examples described in the first section of the paper (see fig. 1).

Organization variables of effective schools. The organization variables need only be named because they are so familiar. There are slight variations from study to study, but the following eight factors
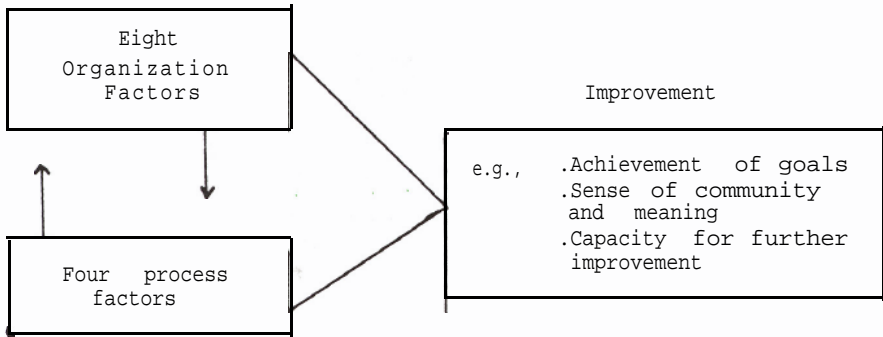
FIG. I.- The school improvement process

are as accurate and complete as any: (1) instructionally focused leadership at the school level, (2) district support, (3) emphasis on curriculum and instruction (e.g., maximizing academic learning), (4) clear goals and high expectations for students, (5) a system for monitoring performance and achievement, (6) ongoing staff development, (7) parental involvement and support, and (8) orderly and secure climate.

Process variables. The main problem from a strategy point of view, as I stated earlier, is that such a list of organization variables indicates neither how the factors operate nor how to implement them in a particular school. They represent the tip of the iceberg. They say nothing about the dynamics of the organization. To comprehend what successful schools are really like in practice, we have to turn to additional factors that infuse some meaning and life into the process of improvement within a school. In reviewing material that more closely addresses process issues, there are four fundamental factors that in my view underlie successful improvement processes: (l) a feel for the improvement process on the part of leadership, (2) a guiding value system, (3) intense interaction and communication, and (4) collaborative planning and implementation. In addition to the material in the first section, I have drawn on Purkey and Smith's (1983) discussion of process variables, Cohen's (1983) analysis of social conditions in effective

schools, the implementation literature (Fullan 1982), and Peters and Waterman's (1982) review and description of "excellent" companies. The latter review, although not on schools, is compellingly congruent with the effective schools literature. As I will indicate later, Huberman and Crandall (1983) provide one of the most specific and insightful descriptions available of the processes of change (involving the adoption and implementation of innovations).

It is these process factors that fuel the dynamics of interaction and development of the previous organization variables.

Leadership feel for the improvement process. It may seem that something as amorphous as "feel for the process" should have no place in any serious discussion of strategy. It is, however, essential to understand this characteristic of effective leaders. It is best described in Peters and Waterman's (1982) discussion of America's best-run companies and in Schon's (1983) work, *The Reflective Practitioner.* There are two reasons for referring to this aspect as "feel." First, the number of factors that leaders must contend with in running and helping to improve organizations defies step-by-step, rational planning. There are simply too many variables to remember, let alone to manage. For example, Hall and Hord (1984) documented nearly 2,000 interventions in one school year in a study of nine principals as each principal facilitated the

implementation of a relatively simple curriculum innovation. Second, processes of improvement are intrinsically paradoxical and subtle. James March captures this in a marvelously accurate metaphor: "organizations are to be sailed rather than driven" (cited in Peters & Waterman 1982, p. 107).

Organizations are complex, and ironically, the way to manage complexity is by simplifying matters. Peters and Waterman (1982, pp. 55-56) refer to several related notions of feel: " As information processors, we are simultaneously flawed and wonderful. On the one hand, we can hold little explicitly in mind, at most a half dozen or so facts at one time. Hence there should be an enormous pressure on managements-of complex organizations especially-to keep things very simple indeed. On the other hand, our unconscious mind is powerful, accumulating a vast storehouse of patterns, if we let it."

Peters and Waterman (1982, pp. 66-67) refer to an experiment in which chess master players were asked to look for 10 seconds at a game in progress. "Chess masters could later recall the locations of virtually all the pieces. That doesn't fit with short term memory theory at all. . . . Simon [the researcher] believes . . , that the chess masters have much more highly developed long-term chess memories, and the memories take the form of subconsciously remembered patterns. . . . They begin with the patterns: Have I seen this one before? In what context? What worked before?"

Later Peters and Waterman (1982, p. 287) state, "An effective leader must be the master of two ends of the spectrum: ideas at the highest level of abstraction and actions at the most mundane level of detail. . . . It seems the only way to instill enthusiasm is through scores of daily events, with the value-shaping manager becoming an implementer par excellence. In this role the leader is a bug for detail, and directly instills values through deeds rather than words: no opportunity is too

small. So it is at once attention to ideas and attention to detail."

I have quoted from Peters and Waterman because I believe they are describing exactly the more holistic, life-blood, real process of managing improvement that is hidden behind superficial phrases such as "focus on instructional leadership." The small number of studies in education that do attempt to portray the effective principal in action tend to corroborate this interpretation (Barth & Deal 1982; Blumberg & Greenfield 1980; Dwyer et al. 1983). Managing and facilitating improvement involve a way of thinking about the improvement process that draws on knowledge about the major factors associated with success but employ them in a nonmechanical manner along with intuition, experience, and an assessment of the situation as a whole. It is simultaneously having and using knowledge about factors *common* to success and possessing the orientation and ability to appreciate each situation to a certain extent as *unique* (Lindblom & Cohen 1979; Schon 1983).

The point of this section is that we must understand the true nature of leadership before we can develop strategies for more effective instructional leadership in schools. Moreover, such strategies may not be as mysterious and difficult to develop as it appears. They require knowledge of common factors related to success (which is relatively straightforward) and opportunity for training and reflection in action (which is complicated). Schon (1983, p. 243) refers to the powerful potential of the latter, untapped source of learning: "Managers do reflect-in-action, but they seldom reflect on their reflection-in-action. Hence this crucially important dimension of their art tends to remain private and inaccessible to others. Moreover, because awareness of one's intuitive thinking usually grows out of practice in articulating it to others, managers often have little access to their own reflection-in-action."

Finally, the very process of becoming a more effective leader, from a psychological and learning point of view, parallels the process of becoming a more effective teacher as indicated in the first section; that is, it requires theory, practice, demonstration, feedback, and support. In short, it involves developing new skills and conceptions about how organizations can be improved.

Values. A second major enabling factor distinctive of effective schools and organizations is the presence of an explicit, implemented value system. In the effective schools research the specific values identified are high expectations for students, commonly shared goals, and a strong sense of community (see Cohen 1983). The instructional mission of the school is valued as primary, along with clear rules, genuine caring about individuals, collegiality, and a commitment to quality through examination of detail (solid, specific information) and continuous improvement.

Again, the findings of Peters and Waterman (1982) are remarkably similar. Successful companies are "close to the customer," are obsessed with meeting the needs of clients, have a strong sense of care and respect for individuals, and have "a bias for action" (they do things). Excellent companies are clear on what they stand for and create a shared sense of highly valued purpose: "the culture regulates vigorously the few variables that do count" (p. 105); and "a set of shared values and rules about discipline, details and execution can provide the framework in which practical autonomy takes place routinely. . . . The rules in the excellent companies have a positive cast. They deal with quality, service, innovation, and experimentation" (p. 322).

Intense interaction and communication. The case examples in the first section were especially illustrative of the ongoing, interactive character of successful change processes. Interactive relationships take place with a range of partners (other teachers, the principal, parents, external support personnel), in a variety of formats (one to one, small group, larger group, training sessions, planning and sharing meetings, etc.), on a sustained basis, and focus on specific problems or innovations. Getting people acting and interacting represents a major route to change (i.e., beliefs, new conceptions *follow* action more than they precede it).

Peters and Waterman's (1982, pp. 51, 121– 122) findings strongly support and elaborate on the critical role of constant communication:

> After all, who in his right mind would establish Management By Wandering Around as a pillar of philosophy, as [Hewlett-Packard] does? It turns out that the informal control through regular, casual communication is actually much tighter than rule by numbers, which can be avoided or evaded . . . .
>
> The nature and uses of communication in the excellent companies are remarkably different from those of their nonexcellent peers. The excellent companies are a vast network of informal, open communications. The patterns and intensity cultivate the right people's getting into contact with each other, regularly, and the chaotic/anarchic properties of the system are kept well under control simply because of the regularity of contact and its nature.

The constant communication and information sharing serve as continuous sources of support and pressure among peers. As Peters and Waterman (1982, p. 240) observe, "Nothing is more enticing than the feeling of being needed, which is the magic that produces high expectations. What's more, if it's your peers that have those high expectations of you, then there's all the more incentive to perform well." Coupling the action focus with intense interaction and information sharing tends to produce positive change. In the field of education, Huberman and Crandall (1983) provide almost identical confirmation in their summary of the Dissemination Efforts Supporting School

Improvement (DESSI) study, which clearly indicates how and why this process of pressure and support works to produce improvements in schools.

*Collaborative planning and implementa-*tion. The question of collaboration between leaders and implementers represents another paradoxical area. There is certainly clear evidence that change efforts initiated either centrally or externally to the school can work well and may indeed be essential in many situations if anything is to happen (Eubanks & Levine 1983; Huberman & Crandall 1983). Huberman and Crandall (1983) explain in some detail that central office pressure along with high assistance is a powerful combination (whereas pressure without assistance is disastrous). On the other hand, several studies have found that collegial decision making *within* the school is strongly related to improvement (Berman & Gjelten 1982; Berman, Weiler, Czesak, Gjelten, & Izu 1981; Cohen 1983; Eubanks & Levine 1983; Little 198l; Purkey & Smith 1983).

I believe that the apparent contradiction can be explained in two ways. First, there is no contradiction. As stressed earlier, successful change processes combine elements that on the surface appear to be contradictory. In this case, central initiation and direction are coupled with decentralized (school-based) analysis and decision making. For school-based improvement efforts to work, central office staff must take an active interest in them by providing direction, assistance, and prodding and by expecting and asking for results. Eubanks and Levine (1983, p. 42, their emphasis) describe the combination.

> Our examination of the effective school approaches described in this paper indicates that they tend to include *both* a top-down and a bottom-up emphasis in planning and implementation.
>
> In each of the projects, for example, central management has delineated some of the elements that must be addressed in individual school plans, has acted (or tried to act) to make sure that adequate assistance is provided for participating schools, has closely monitored project development in the schools, and has been or is in the process of formulating plans to intervene at less successful sites.
>
> On the other hand, each project also places heavy emphasis on planning and adaptation at the individual school level, on providing process assistance to support bottom-up planning and decision making, and on helping participating schools address problems that are particularly salient to them.

The second explanation is that for some changes-namely, innovations that are well developed, validated, structured, programmatic, and focused-district decision making combined with intense assistance that promotes school implementation can and does work. There appears to be little participation by school personnel in decisions. The success of the Direct Instruction Model of Follow Through is patterned on this approach (Gersten, Carnine, Zuref, & Cronin 1981) and Huberman and Crandall's (1983, p.65) depiction of one of the main routes to improvement that they found in the DESSI field study also describes this process: "The central office administrator, who is usually responsible for curriculum and special projects, puts pressure on users to adopt or develop the practice. Such strong-arming can, and often does, lower users' initial commitment. When, however, substantial assistance is supplied, it tends both to increase users' level of technical mastery and subsequently their commitment. . . . The general picture is one of administrative decisiveness, accompanied by enough assistance to increase user skill, ownership and stable use."

Although such a process may be entirely appropriate for some changes, in my view it tends to be limited to already well-developed innovations that focus on classroom changes; it can result in major change in the classroom, and this is no small feat.

However, for schoolwide changes (e.g., altering the eight organization factors cited earlier), more top-down/bottom-up combinations are required, and it is, of course, much more difficult because more fundamental changes are being attempted.

To summarize, the model of successful change processes is one whereby the eight organization factors, supported and fueled by the four process variables, produce school improvement (see fig. 1).

Most of all, it is imperative to understand and appreciate the actual dynamics of the change processes as they unfold. However change is initiated, once it begins, it involves anxiety and uncertainty for those involved and (if successful) the development of new skills, cognitive understandings, beliefs, and meanings. Whether the process is successful depends on certain organizational conditions that support and propel the process. Finally, leaders must alternately and simultaneously balance and contend with several dilemmas, paradoxes, and subtleties: simplicity-complexity, top-down/bottom-up, tightness-looseness, evaluation-nonevaluation, and commonness-uniqueness of situations.

Strategies for school change

What should superintendents armed with the knowledge and understanding of the material discussed up to this point do if they wish to bring about improvement at the school level? Recall that this paper addresses the question of strategies for local districts. Strategies for other roles (teachers, parents, principals, the state, etc.) should also be developed (see Fullan 1982). Of course there are some obvious implications for some of these other roles in this paper. I will discuss two options: an innovation-focused strategy and a schoolwide (or department-focused) strategy. The innovation strategy is presented in considerable detail because many of the specific ideas are common to effective approaches in bringing about schoolwide change (al-

though the latter represents a much more formidable   task).

There is one central issue common to strategies that warrants comment at the outset. Strategies usually involve the development and implementation of *plans* (certainly the effective schools strategies do). We know very little about school-level plan making and execution. As Good and Brophy (in press) point out, research does not indicate that more effective schools have more formal plans, but only that there is a greater consensus among the staff that students can learn. Starting with a formal plan may or may not be a good idea. Moreover, there are good and bad plans and too much as well as too little planning (Good & Brophy, in press). We need research that describes individual school plans, considers criteria for evaluating them, and investigates how plans are developed as well as the quality of their implementation. Again, existing research does not tell us that the best way of translating research findings on effective schools is through the development of formal plans. Nonetheless, strategies imply improvement through deliberate means, and this section attempts to make explicit the components that effective plans should incorporate.

In the concluding section of the paper, I will comment on possible differences between elementary and secondary schools and between rural and urban communities and take up four difficult issues that are vexing in any strategy: what to do about voluntary versus involuntary participation, small versus large-scale efforts (few schools versus many), fidelity versus adaptation (or homogeneity versus variation in implementation), and where to start, especially in relation to formal plans.

Innovation-focused strategy

It is helpful to think of three broad phases of the change process-initiation (including mobilization, adoption decisions, development), implementation (put-

ting the change into practice), and institutionalization (building in the innovation) (Berman 1981; Huberman & Crandall 1983). Continuous planning, action, and reflection are required at all three phases. The innovation-focused strategy is one whereby the main approach to school improvement is through the identification, adoption, or development of specific proven or promising new programs. Although there is not one best way (largely because each situation has its own history and combination of factors), the following eight guidelines have some support in the literature: (1) develop a plan, (2) clarify and develop the role of central staff, (3) select innovations and schools, (4) clarify and develop the role of principals and the criteria for school-based processes, (5) stress staff development and technical assistance, (6) ensure information gathering and use, (7) plan for continuation and spread, and (8) review capacity for future change.

Developing a plan. The most general advice is to develop a plan consistent with the knowledge of effective change processes. This is not as vague as it sounds. First, it assumes that a plan should be developed (although, as stated above, it is not at all clear at what stage the plan should be formalized). Superintendents (or other leaders), both individually and in collaboration with those around them, should think through and develop some procedures for change. There are reinforcing checklists that can be used: How is each of the eight organization factors being addressed? The four process factors? Approached from another angle, how does the plan systematically incorporate guidelines 2-8, which are discussed below?

There is an additional caution relative to the issue of formalization of plans: when one person or a small group develops a plan, it is only their plan; therefore, educating and being educated by others who will be participating in the change process is essential. Mechanisms for testing, getting feedback, and altering the plan are

very important, especially if the plan represents an approach to bringing about change that is new to the district. The degree of collaboration in this level of planning can differ. It is possible for a small group to develop a plan, provided that the plan is not too complex at the outset and can later be modified. Obtaining wider representation can be helpful in developing a more sound plan initially. One must be cautious, however, in enlarging the planning group; energy spent on elaborate planning can be at the expense of energy spent on implementation. It is better to do a small amount of preimplementing planning and a large amount of implementation planning/support rather than vice versa. And no matter how representative the planning group, any decisions they make will be external for the majority of users. Finally, the specifics of any particular plan will differ from innovation to innovation, depending on the nature of the change, the scale of its implementation, the characteristics of the schools using it, and so on. The underlying principles and guiding actions, however, are common to most successful efforts. The superintendent and other central office program leaders should get in the habit of developing plans based on their experiences, knowledge of the situation, and research findings and should try out, reflect on, and modify the approaches. Deliberations on plans are necessary to ensure that the remaining seven guidelines are explicitly addressed.

Clarifying and developing the role of central staff. A second ongoing task relates to the need for the superintendent (or any other program leader seeking improvements) to clarify and develop the capacity of central district staff to support innovation development and implementation. Again, at the general level, this involves helping them become aware of the research on effective change processes and supporting/pressuring staff to learn further by doing. In the same way that the principal who interacts regularly with

teachers in relation to an innovation has a strong positive effect, the central district leader who interacts regularly with district staff (and for that matter with principals) in relation to the innovation process improves their abilities as change facilitators.

The exact role of central office staff members differs from person to person or, sometimes, from innovation to innovation. The role of central office administrators and staff has not been widely studied in relation to implementation. Fortunately, Crandall et al. (1983) and Huberman and Crandall (1983) in their large-scale study of the National Diffusion Network (NDN), Title IVC Adoption grants, and Title IVC Development grants, traced and documented the role of central staff and their effects on change. Among the critical roles central staff play are scanners, adapters and advocates of promising new practices, direct implementation assisters to teachers, teaming with facilitators external to the district by providing implementation assistace after an external facilitator has conducted front-end training, and indirect roles such as the training of principals and/or resource teachers who provide direct support to teachers. Crandall et al. (1983) found that central office administrators and staff were primary initiators for identifying and advocating promising practices developed outside the district and for promoting locally developed innovations. (Locally developed innovations, as they point out, were still external to most classrooms using the innovations, since the latter had been developed outside the schools of most teacher users.) And central staff were critical for stimulating change at the school level. (As indicated, this could range from direct involvement with teachers to active involvement with principals or other internal school facilitators.)

The message is clear. Central office administrators must be actively involved (directly or indirectly) throughout the process, not just at the initial or final (evaluation) phases. The particular configuration of central office staffing will vary, but Huberman and Crandall (1983) make six specific suggestions derived from their research and insights.

First, invest selectively in preimplementation assistance. The biggest benefit appears to be materials rather than much formal training at this stage.

Second, expect, but try to limit, changes in the innovation. If the innovation has been well-developed and proven (e.g., NDN innovations), require more fidelity (faithful implementation) at the early stages. These stages are always marked by difficulties during which both assistance (to facilitate mastery) and supervision (to keep users on track) are necessary. Even with a good innovation and good support, there will be major uncertainties at the initial stages of use. Huberman and Crandall also note that for local innovations that are still being developed, the approach would be different, and development (modifications) during implementation would be encouraged.

Third, keep central office administrators involved. Central office administrators deliver critical follow-up support and appear to keep principals busier ministering to the projects than would have happened otherwise. Huberman and Crandall (1983, p. 55) suggest, "One could imagine, for instance, the benefits of providing a special mini-course on administrative features of the innovation and what it means for administrative support during implementation."

Fourth, invest more in later commitment of users rather than earlier commitment. People become committed as a result of involvement more than as a prelude to it. Commitment comes from technical mastery that occurs during implementation. Central office administrators should try to develop assistance and sharing during this period.

Fifth, specialize external facilitators. Some external developers, or consultants, are needed as initial trainers. Some facil-

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itators work better with teachers; some with local facilitators or school administrators.

Sixth, invest in local facilitators. Whether in the form of central office consultants, project directors, part-time resource teachers at the school level, or a combination, local facilitators are critical for implementation. Huberman and Crandall found that implementation was far greater in situations that involved external and internal facilitators than in situations in which only an external facilitator was involved.

In short, work needs to be done on developing the capacity of central office staff to fulfill and balance the initiating and assistance roles in implementing innovations.

Selecting innovations and schools. Three suggestions can be made pertaining to initial decisions, availability of needed innovations, and school readiness.

In the initial choice of innovations, a school district can take two different orientations, which can be labeled "relatively school-initiated" versus "relatively district-initiated." The former approach involves district support of schools as they consider and make decisions about which innovations to adopt. In the latter, the central office staff is more active in proposing and deciding on innovations with varying degrees of agreement from the school. Note that districts can use both orientations at once (i.e., encouraging and supporting individual schools to decide on innovations, while touting and mandating particular ones from time to time) and that, although initial decision making may differ, central office staff can play a major role in both cases. For example, in the school-initiated change, central staff are critical for making schools aware of potential innovations and for seeing to it (directly or indirectly) that implementation assistance is available.

Second, a system should be developed for scanning environments external and internal to the district for potential innovations that meet a need in the district. On the one hand, this consists of searching for promising new practices through the NDN network, information-retrieval systems, various awareness conferences, and so forth, and generally looking for opportunities for identifying and introducing worthwhile changes, or for bringing them to people's attention for possible adoption. On the other hand, it involves looking for interest in and funding for the development of new practices internal to the district. In either case, the focus would be on questions of need; clarity, availability, and quality of materials; and provisions for follow-up assistance (Huberman & Crandall 1983). For externally adopted innovations, the emphasis would be on helping to get the program into place (with or without adaptation). For internally generated programs the first concern would be to provide support for *developing* the program (in terms of materials, provisions for follow up, etc.). A secondary concern, the spread of the innovation within the district, is essentially the same as for externally developed changes (i.e., it would be external for all those users who were not involved in its development).

The third strategic matter relates to selecting schools on school readiness. This can be pursued in different ways. Schools can be encouraged to select/develop their own innovations; others can be invited to adopt a given innovation; they can be advised that they should adopt a particular change; or they can be mandated to participate. All other things being equal, voluntary participation is obviously best. But initial indifference or even opposition can be turned around if the innovation has high quality, meets a need (once tried), and users are given helpful, ongoing assistance during the early stages of implementation (more about voluntary/involuntary participation later).

Principals and other school-based criteria. The single most important message

here is that superintendents must invest in the instructional/change management leadership role of the school principal. There has been an explosion of research in the past 5 years on the role of the principal in school improvement (for summaries, see Berman & Gjelten [1982]; Bossert, Dwyer, Rowan & Lee [1982]; Crandall et al. [1983]; Dwyer et al. [1983]; Hall, Hord, Huling, Rutherford, & Stiegelbauer [1983]; Leithwood & Montgomery [1982]; Mulhauser [1983]). This research is now being followed by the rapid development of in-service training programs for principals (see Leithwood, Stanley, & Montgomery 1983; National Institute of Education 1982).

Approaches for strengthening the role of the principal must be pursued at two levels: specific (innovation-focused) and general (ongoing mid- and long-term development). I have already discussed several aspects of the specific role. Principals are very influential when they voice and demonstrate commitment to an adopted innovation and follow through by seeing that ongoing assistance, interaction, and so forth occur within the school. Sometimes principals assist directly; in other situations they actively facilitate assistance by others; in still other situations principals respond supportively to the activities of teachers or other facilitators. Just as ongoing assistance to teachers is crucial, so is ongoing assistance to principals: interaction between supervisors and principals, peer sharing among principals, receiving ideas, trying them out, discussing them, taking more action, and so forth.

The general strategy is directed to increasing on an incremental, ongoing basis, the capacity of school principals in the district as school improvement leaders. Four suggestions can be made.

The first suggestion concerns in-service education. The attention here is devoted to increasing the capacity of existing principals. In addition to encouraging continuous professional development in a variety of ways (e.g., supporting and encouraging principals as individuals to participate in leadership courses and workshops), I believe that more direct steps should be taken. For example, conduct a mini-course for principals (or subgroups) directly on the role(s) of the principal, focusing on the types of administrative actions that should be taken to support implementation. The knowledge and technology, as stated, are available for such a course. Follow-through assistance for principals is essential. This training should provide the opportunity to apply the ideas to the planning of a specific innovation and should involve coaching for principals and peer interaction.

The second concerns strengthening potential leaders. At the same time, districts should pay attention to identifying and developing the talents of assistant principals, vice-principals, department heads, resource teachers, and so forth, as school improvement leaders. This should be done through formal means (mini-courses) and informal means (interaction, apprenticeship, etc.). Doing this serves the double purpose of improving the skills of leadership staff in their current roles, as well as developing a talent pool for future principals.

The third relates to selection procedures for principals. Historically, and by and large currently, principals are not selected on the basis of their skills as instructional improvement leaders (for one of the few studies on this topic, see Baltzell & Dentler [1983a, 1983b] . Now that we possess increasingly specific knowledge, school districts should develop procedures and criteria for selection of principals (and for that matter, vice-principals and department heads) that are based on demonstrated interest and basic skills in leading/supporting school improvement efforts.

The final suggestion concerns transferring, circumventing, and getting rid of ineffective principals. Although disticts are best advised to concentrate on the pre-

vious three strategies, it will also be necessary from time to time to figure out ways of moving principals who are not performing capably to other schools (where a fresh or more compatible start may be possible), transferring certain principals to nonprincipal positions, arranging for early retirements, and looking for alternative leaders (to the principal) for specific innovations (such as assistant principals, project directors, resource teachers). Sometimes it may be best to wait until a principal retires, making the best of the situation in the meantime. This is a very sensitive area, and school districts contend with it one way or another all the time. My own assumption is that by putting into place the various other approaches listed in the preceding section, more and more principals will become effective change leaders (or put another way, it will be increasingly uncomfortable for the few who are not).

To turn to the principal's role within the school, I should like to stress other school-based criteria mentioned earlier. It is the principal's role to help create the climate (collegiality, communication, trust) and mechanisms (time and opportunity, interaction, technical sharing and assistance, ongoing staff development) for supporting the implementation of innovations. This will form part of the in-service education for principals that is directed at helping them to establish with teachers the necessary organizational conditions for implementation that have been described in this paper.

In speaking of school-based criteria, I have said nothing about parents. The messages of research on the apppropriate role of parents in innovation are not clear. There is some evidence that involving parents in instruction (in the classroom as aides and/or in home tutoring programs) at the elementary level has a positive effect on learning (Fullan 1982) and there are some horror stories of what happens if the community is ignored when major innovations are introduced (e.g., Gold & Miles 1981).

On the other hand, the DESSI study found many examples of major change in the classroom where parents and the community apparently played little or no role. The best advice for elementary schools seems to be that, at a minimum, they should be wary that parents and the community are not opposed to an innovation. At a maximum, they should involve parents in planning and in instructionally supportive roles in relation to an innovation.

Finally, I have said nothing about the differences between elementary and secondary school principals. Most of the innovation-focused research has been on elementary school principals, so there are limitations to our knowledge. Some studies have found that many of the issues in secondary schools will be comparable (see Leithwood & Stanley 1983). The main differences are likely to involve working through and with vice-principals and department heads, instead of more directly with teachers, and working with proportionately smaller sections of the school at any one time (Farrar, Neufeld, & Miles 1983).

Staff development and technical assistance. Staff development and assistance have been stressed at several points, so that I need only summarize the advice.

First, understand how the process of learning to implement an innovation actually works (e.g., the four case examples in the first section). Remember that learning to be proficient at something new involves initial anxiety, a variety of assistance, small experiences of success, incremental skill development, and eventually conceptual clarity and ownership.

Second, invest selectively in front-end training good demonstrations, materials, awareness but not heavily in training (it is when people try out something that specific training makes more sense).

Third, use as much assistance as possible during the early stages (e.g., the first several months, or the first school year). Use a variety of formats workshops, one-

to-one, sharing among users, meetings, visits, help from peers, administrators, district resource staff. Both event training (workshops, meetings) and ongoing assistance (one-to-one sharing, interaction with others on a daily basis) are needed. Look for ways of finding small amounts of time to foster interaction, whether formally or informally (see Huberman & Crandall 1983; Louis & Rosenblum 1981).

Fourth and finally, clarify and provide training for assisters concerning who does what at which stages among external consultants, district office resource staff, the principal, project directors, school resource staff, peers. Different patterns can work, provided that all phases of the process are attended to (front-end, early implementation, later implementation or institutionalization) and that there is clarity as to who is responsible for different functions.

As Huberman and Crandall (1983, pp. 76, 51) emphasize, "Innovations entailing significant practice change live and die by the amount of assistance they receive. . . . Providing aid does not mean mobilizing or bankrolling large armies of external consultants; most can be done locally, and a little [regular contact] goes a long way. Simply arranging for teachers next door to one another to meet periodically pays handsome rewards." Small amounts of release time combined with other ways of finding time through scheduling can have a powerful influence, *provided that* other critical factors in the change process are in place.

Ensuring information gathering. There are three strategic tasks to be addressed relative to information gathering: the types of information to be collected, the degree of formality/informality of data collection, and the use of information. Good usable information during the process of change obviously supports problem solving and learning to use innovations more effectively. The first aspect the what of information refers to three types of in-

formation: (1) What is the state of implementation in the classroom? (Does classroom practice reflect the innovation?); (2) What factors are affecting implementation? (What are the obstacles and facilitators to change in classroom practice, e.g., role of the principal, assistants, etc.?); and (3) What are the outcomes? (e.g., student learning, skills and attitudes of teachers).

One type of information will be very limiting without some knowledge of the other two types. Information on all three facilitates more specific planning and assistance.

The degree of formality/informality relates to how to gather information. Formal methods involve surveys, interviews, observation, testing, and the like; informal methods consist largely of continuous interaction among peers, between peers and administrators, and other facilitators. Both formal and informal methods are used in most school districts. It is a matter of relative emphasis-a question that can be partially clarified by turning to the third task.

Unless formal information is linked explicitly to a procedure for acting on it, it will likely do more harm than good. Hall and Loucks (1977) have developed a procedure that has met with considerable success. It primarily involves collecting information on levels of implementation, concerns of teachers, and so forth, and uses the information for such tasks as planning and carrying out more focused staff development, identifying specific leadership activities for principals, and so on (for one application involving Hall's procedure see the summary of Jefferson County in Fullan [1982, pp. 170-172]. Others who study information use in school districts also stress the importance of linking information to instructional management strategies for using it (Bank 1981; Kennedy, Apling, & Neumann 1980).

Perhaps the most insightful and fundamental point, however, is one Peters and Waterman (1982) stress. Increasing the amount and variety of informal commu-

nication and interaction serves as a powerful, information-based system of influence. Most of the previous tasks do precisely that; the role of central office staff vis-a`-vis schools, the role of principals, the nature of staff development and assistance all function to increase the flow, variety, and intensity of interaction and information. Stated another way, an effective informal communication system serves a formative evaluative purpose by influencing action, without which even the most systematic formal data-gathering procedures are next to useless.

Planning for continuation and spread.

Successful implementation attaining strong technical mastery of and commitment to a new practice-is not the end of the story. In the absence of deliberate measures to build in the continuation of the innovation, the natural forces of attrition will result in its disappearance (see Miles 1983). Of course, it may be desirable to replace an implemented practice with a better one through deliberate decisions, but the point here is that good, implemented innovations should not disappear by accident or neglect. Huberman and Crandall (1983) report from their study that accomplishing technical mastery of complex changes took some 18 months. What happened after that period was critical to the future of the innovation in the school. They observe, "New practices that get built in to the training, regulatory, staffing and budgetary cycle survive; others don't" (p. 70).

The advice, then, is to have plans to train and assist new teachers as they are appointed, incorporate the new practice into formal curriculum plans and job descriptions, and allocate regular budget line items for materials to ensure that resources continue to be available, and above all, when replacing people in leadership roies (principals, project directors, resource teachers), be clear about expectations and provide orientation and assistance to new leaders (see Miles 1983).

Within the school, the principal can perform or oversee the steps necessary for supporting continuation, while the central office staff can perform the same roles in relation to schools.

A second extremely important aspect of durability in the district (and important in its own right) that starts long before the institutionalization phase concerns the relation between initial users and other potential users in the district. District staff would be well advised to consider this matter from the outset and to attend to it from time to time during the process. First, it may be that the district strategy is to stress individual school autonomy. In this case, there would be more concern that each school is deciding on appropriate innovations for itself than about whether each school is adopting the same innovation (the dissemination or spread of particular innovations across schools would be encouraged but not insisted upon). Second, districts may involve all eligible schools/users from the outset, although this is unlikely if a large number of schools are involved (it would not be feasible to provide adequate assistance of the type described earlier).

In any case, let us assume that the decision is to start with a smaller number of schools that represent a portion of eligible users, and the longer-term desire is to see the innovation spread. There are two strategic questions to address: what to do during the first phase, and what to do in moving from the first to the second phase. As to the first phase, there is very little if any research on the relation between first users and nonusers during the process. However, it is probably undesirable to ignore altogether eligible nonusers. For example, if the first group comes to be seen or sees itself as an elite group of progressive innovators, it is bound to create resentment and barriers to spreading the innovation. Therefore, it seems wise to establish some informal lines of communication between users and nonusers to allow the latter to

become at least somewhat familiar with the change. This no doubt represents a dilemma since familiarity may result in demands to use the innovation before the district is capable of supporting use.

Concerning the second phase the spread from first- to second-generation users there is at least one advantage and one disadvantage. The advantage is that the results of the first cycle can be used as an infrastructure for dissemination; that is, materials, training, procedures, and personnel skilled in the new practice should be used to provide the assistance and administrative pressure/support for new implementers. Assuming implementation and attainments have been successful in the first phase, new users will likely be influenced positively by concrete examples, demonstrations, and endorsements by other teachers. Further, as Huberman and Crandall (1983) note, if procedures for institutionalization have been attended to, the means of extending the practice will be built in. The disadvantage is that first users often have a pioneer status that is self-motivating and that by definition is not available to later users. However, this may be more than counterbalanced by the refinement in practices, materials, and support that can facilitate commitment through quicker technical mastery and corresponding goal achievement for later implementers.

Reviewing capacity for future change. The ultimate goal of innovation strategies presumably is not merely to implement an innovation but rather to increase the capacity of the district to identify, consider, implement, and institutionalize any number of appropriate innovations. I recommend, therefore, that from time to time and certainly at the end of any cycle and the beginning of another one, districts consider questions such as, How good are we at implementing innovations that bring about improvements? and, Are we getting better at it?

In a sense, these questions represent a generic assessment of the basic factors considered in this paper: Are we making progress on the eight organization and four process factors discussed earlier in this section? Have we increased our capacity to carry out the previous seven tasks listed here? Successful efforts should improve participants' skills and attitudes. Huberman and Crandall (1983) refer to several types of capacity change. Most of their examples relate to changes in pedagogical skills; in addition, there may be positive gains in "change process capacity," such as attitudes and skills involving collaboration among teachers, principal-teacher relationships, and leadership skills of district or building staff. Districts should bear these more general goals in mind from the outset, monitor them periodically, and carefully take stock at the end of major cycles. After all, it is conceivable that a district could put tremendous effort into a particular program and be highly successful at implementing it but that the effort could demand so much from personnel that they do not want to try another innovation for a long time. Change involves pressure, assistance, and skills, but people must feel good about their relationships, sense of community, and sense of progress that result from their efforts.

Schoolwide strategy

The schoolwide strategy is presented in much less detail for two reasons: (1) many of the underlying principles and strategic emphases are the same as those for the innovation-focused approach, and (2) there is not nearly as much research available on implementation processes within schools. The essential difference compared with innovation-based strategies is that the schoolwide strategy takes a more comprehensive approach. Instead of implementing a given innovation in a few classrooms, the schoolwide strategy engages the whole school or major subsections of it and attempts directly to alter some of the orga-

nizational and process factors indicated in figure 1 as well as to focus on instructional improvements. More precisely, it attempts to change certain organizational conditions as a means to instructional improvement. Note, however, that compared with the previous set of strategies, the school-wide strategy contends more explicitly with innovation of the school, not just innovation in the school. As such, it is much more difficult and time consuming. Fullan, Miles, and Taylor (1980), in a review of Organization Development (OD) programs, estimate that it takes at least 5 years to establish an effective OD program (even if everything is done right). Joyce, Hersh, and McKibbin (1983) propose a multiyear, three-stage process refinement, renovation, and redesign for bringing about schoolwide improvement. In some respects the strategy can be made more manageable by starting with one or two major goals and/or with subsections of the school and expanding gradually.

The main elements of the schoolwide strategy can be outlined by referring to two types of effective schools programs that have met with some success California's School Improvement Program (SIP) (Berman et al. 1981; Berman & Gjelten 1982) and some second-generation effective schools projects (based on effective schools research) in four major cities (reviewed by Eubanks & Levine 1983; also see Clark & McCarthy 1983).

Berman et al.'s (1981) evaluation of SIP has not yet been completed. Their preliminary findings indicate some of the elements of success. Berman and Gjelten (1982, p. ii) describe the purpose of SIP: "The program is aimed at improving the quality of instruction for a wide variety of student outcomes. . . . SIP requires a broad-based participatory planning process in which school staff and parents (and students in secondary schools) regularly review their school's instructional programs, design and implement improvements, evalute the results, and replan accordingly.

To implement SIP, the Department of Education has devised a mix of incentives, guidelines, and assistance, together with a combination of regulation and program reviews, all designed to promote local responsibility."

Some of the noteworthy features of the approach are as follows: schools receive funding directly (i.e., not through district offices), which provides substantial discretionary funds solely for SIP work; parents are involved in program planning; the school plan is directed at schoolwide coordination, not to single innovations; the content of school program decisions is not prespecified but is left up to the school; the state trains and uses peer reviewers to provide formative feedback to schools on their plans.

Berman and his colleagues identified three types of improvement that occurred: student-centered (i.e., instruction), organization-centered (climate, resources, etc.), and community relations. In a sample of 48 schools, using field workers' assessments, Berman and Gjelten (1982) found that a little over one-half of the schools had "improved" (45%) or "improved greatly" (7%) over a 5-year period. Berman and Gjelten (1982, p. 27) describe the "ideal" approach that many of the successful schools attempted to approximate: "A SIP school *(a)* develops a plan that aims to make gains in curriculum or instruction; *(b)* continuously evaluates the plan and improves it as needed; *(c)* engages in a broader schoolwide planning process; *(d)* establishes a school-site council (SSC) that decides on central issues in the school; *(e)* involves parents actively in SSC; and supports staff development activities."

In searching for explanations that differentiated successful from nonsuccessful sites, Berman et al. (1981) tentatively identify four factors. Although these factors beg other questions, they are helpful in pointing to areas of investigation. Specifically, they found that successful schools had active school-site councils, SIP was

central to the school's program (as distinct from "just another project"), the SIP plan was actually implemented, and the schools volunteered rather than were mandated. There are hints about other factors related to success, including active interest and performance of the principal at the elementary level, staff development and school climate, and difficulties of bringing about change at the secondary level. Although many of Berman et al.'s findings are congruent with those in the previous section, we do not know how to implement them. Further, SIP schools received substantial additional funds beyond their regular budgets.

The second-generation effective schools projects provide more direct and specific guidance for school improvement (but still do not give details on implementation processes). The New York City School Improvement Project has eight phases: "(1) program introduction, including selection of schools and accommodation of the liaison [each school has a liaison facilitator] into the school community; (2) a needs assessment conducted by the liaison; (3) formation of a school planning committee; (4) development of a school improvement plan based on the five school effectiveness factors [strong administrative leadership, high expectations for children, etc.]; (5) plan review and approval; (6) implementation of the plan; (7) plan evaluation and revision; and (8) maintenance, during which implementation, evaluation and revision processes become cyclical" (Clark & McCarthy 1983, p. 18).

Clark and McCarthy report that plans were implemented in those schools where the principal was actively involved, that voluntary participation by the principal and staff was a significant variable, and that the liaison role is a complex one in providing assistance while avoiding overdependence.

Eubanks and Levine (1983) report on similar effective schools projects in four cities: Chicago, Milwaukee, St. Louis, and New York. Their descriptions give more mention of the assistance activities (materials, in-service, follow up) and monitoring activities (review of plans, information gathering) conducted to combine support and pressure toward better implementation.

Given the attractiveness of effective schools projects and the lack of detail on process, what response should be made to the local decision maker seeking advice? The first piece of advice is a caution. Nothing would be worse than establishing a grand scheme putting all schools in the district through the paces of developing effective schools plans. The best strategies come from combining the insights of the innovation-focused and effective schools research. The precise plan and range of factors addressed will vary according to the needs, interests, and conditions within a district. The following list of guidelines suggests some factors that must be attended to. Note that it is not far removed from the innovation-oriented list presented earlier, except that the initial focus is on the school, not on an innovation; for that reason we should expect that more effort and time will be required.

1. Develop a plan. The school effectiveness approach views the school as the unit of change. The overall plan should consider how the main organization and process factors will be addressed. Cohen (1983) divides the factors into three levels, classroom, managerial, and shared values. The point is to have an overriding framework of criteria. It may be advisable to have the plan evolve through interaction with those participating, rather than starting with a formal plan.

2. Invest in local facilitators. As with innovations, and as with the successful effective schools projects, each school must be assisted by someone trained in supporting the endeavor. In the case of effective schools, the assistance is directed toward facilitating and prodding the process.

3. Allocate resources (money and time).

Because effective schools projects attempt more, they require more resources. The reviewed projects allocated additional funds to schools for materials, technical assistance, and release time for training and planning. It is important to note that it is not the availability of resources per se that counts but rather their interaction with other factors on the list. But extra resources and time are required for teachers and others to observe, share, plan, act, and evaluate.

4. Select schools and decide on scope of projects.

There is some argument about whether voluntary or mandated approaches should be used. If the program is a good one and reasonably well supported, there should be enough voluntary participating schools in most districts (even so-called voluntary programs are, strictly speaking, not all that voluntary when the superintendent touts them). Mandated approaches, as in the innovation example, can work if the school plan is well implemented. This means that fewer schools can be worked with at one time because implementing a plan in an initial nonvoluntary situation requires more intense assistance and follow-up. Note also that initial mandates can and should be followed by participation at the school level in decisions about the nature of the school plan. People develop competence and commitment during implementation (see Miles, Farrar, & Neufeld [1983] for further evidence on voluntary and mandated programs). Scope concerns the number of schools and the proportion of personnel in any given school in the program. In relatively voluntary situations, it is possible to work effectively with 15-20 schools at a time (Eubanks & Levine 1983). Related to the matter of number of schools is the question of how comprehensive and fundamental the reform should be within a school. Eubanks and Levine recommend that, unless one is working with only one or two schools, manageable changes be attempted (what they label "incremental, multischool reform"). In practical terms this means concentrating initially on one or two instructional areas (e.g., reading, math at the elementary level, or working with departments or other subsections of the school at the secondary level) and spreading outward gradually. To say that only a small number of instructional areas should be addressed is no small matter, because whatever the focus, the various organizational conditions supporting implementation must also be explicitly taken into account.

5. Concentrate on developing the principal's leadership role.

The same suggestions as in the innovation-focused strategy apply here, except that the focus of leadership training is on developing school plans. Training and follow-up support geared specifically to managing/leading the particular school improvement plan would be required.

6. Focus on instruction and the link to organization conditions.

To start with a qualification, it is possible that certain noninstructional goals might be entirely appropriate (e.g., community relations, climate, attendance, etc.). The recommended suggestion to focus on instruction is to highlight the central function of schools and to take advantage of our recent knowledge about how to bring about instructional improvements. In the effective schools research critiqued earlier, it was noted that the link between schoolwide factors and individual classroom change was obscure. Thus, effective schools strategies should focus on classroom instructional change. There are several good examples of instructional improvement ideas Stallings's (1981) case described in the first section, Brophy's (1983) review of effective classrooms, and Huberman and Crandall's (1983) selection or development of appropriate innovations. In other words, the effective school plan will incorporate and make explicit the relationship between instructional improvements at the

classroom level and corresponding organizational and value or normative changes, using methods (such as survey feedback) derived from OD (Fullan et al. 1980; see Cohen [1983] for a discussion of the three levels of classroom, managerial, and value changes). The one additional recommendation is to broaden the interest in instructional goals to include higher-order cognitive and self- and social-development goals.

7. Stress ongoing staff development and assistance. The sine qua non role of staff development has been described in the previous strategy. The same ideas apply here in the service of front-end and initial implementation assistance in developing and implementing school plans. The assistance is of two types: (1) assistance in plan development and implementation (or, if you like, help in the process of improvement), and (2) technical assistance at the level of the classroom in implementing selected instructional improvements.

8. Ensure information gathering and use. Again, the idea is similar to the suggestions under the innovation strategy. A system for information gathering would be established relative to the nature of school plans and to their implementation (i.e., their degree of implementation, obstacles encountered, and outcomes). The tension and balance between formal and informal systems of information would be considered. The use of information during the first phases of planning and implementation should focus on school-level planning.

9. Plan for continuation and spread. Identical ideas apply to this aspect of consolidating school improvement as to an innovation, except that the school effectiveness plan is the innovation to be institutionalized. The spread of schoolwide planning to other schools can also follow essentially the same principles described in the earlier section with one major qualification; planning for the spread of schoolwide projects is exceedingly more complicated than planning for the spread

of a single innovation; most effective schools programs underestimate the difficulties of dissemination.

10. Review capacity for future change. At the end of a school-plan cycle (presumably directed at some significant area of instructional improvement) the district should assist or support the school in reviewing its experience. This represents a general evaluation of whether the experience has been positive, whether it has increased the school's capacity to conduct school-based planning and implementation, and what should be modified for the next cycle. Furthermore, the goal of capacity building should be explicitly recognized at the beginning of any cycle as a fundamental mid-term and long-term priority.

Summary. Schoolwide strategies are usually more comprehensive than specific innovation strategies, with the school-based plan and its implementation being the innovation. The 10 guidelines outlined above do not represent the single best way of implementing schoolwide changes. A perfectly acceptable and more streamlined approach may be to take a well worked out effective schools project that already exists (e.g., Eubanks & Levine 1983) and adapt it. However, because of the lack of attention to and/or information on the processes involved and because schoolwide change processes are subtle and complex, the single most important additional recommendation is to apply the 10 guidelines (or some similar version of organization and process factors) as a checklist to ensure that the basic details of effective change processes are considered.

Conclusion

I should like to close with a few important themes and loose ends: strengths and limitations of the two strategies; context differences with respect to elementary and secondary schools and rural and urban schools; problematic dilemmas pertaining to voluntary/involuntary, small-scale/

large-scale, fidelity/variation orientations to change and the perplexing question of where to start.

The advantages of the innovation-focused strategy are that it is very specific, there are many well-developed and validated innovations available, and we know a great deal about how to go about it. If well implemented, this strategy accomplishes significant change in the classroom, with positive outcomes for students and teachers. It is cost-effective in that small amounts of additional funds used to foster regular interaction go a long way. Its main disadvantages are that in most cases the strategy ends up being narrow (piecemeal). Thus, it usually lacks perspective in assessing the overall goals of the school.

The schoolwide strategy has the advantage of considering the school as a unit, although in many circumstances it too has addressed limited goals. It addresses directly the school-level organizational and process factors that form the foundation for effective change processes. It engages the whole school or large parts of it in a collective effort of school improvement. Its disadvantages are that it is more costly, we have less knowledge on exactly how to make it work in the classroom, and there is more danger that school planning will become a ritualistic exercise that does not produce worthwhile plans and/or plans that are effectively implemented. In short, it could become a bandwagon, with the labels, trappings, and formal elements of effective schools projects being adopted, but not understood or implemented with any meaning or substance. Nonetheless, there are several examples of successful projects, and the best advice is to realize the attention to implementation detail that is required.

Earlier I referred to elementary/secondary comparisons. We do not know enough about these differences, because there have not been many attempts to reform secondary schools. Studies that have considered the differences suggest that

secondary schools are less likely to change (e.g., Berman & Gjelten 1982). On the other hand, Stallings (1981) was successful in bringing about classroom change, and Farrar et al. (1983) make a number of sensible recommendations that are congruent with knowledge of the change process: clarify and work on specific goals, work with departments or other subunits, focus on curriculum and the classroom (something that has been neglected), use faculty task forces, specify front-end and ongoing training, and establish more opportunities for program developers and users to share and collaborate. I might add the need to develop in-service programs for secondary school principals, vice-principals, and department heads relative to their roles in the improvement process.

I have not carried out a literature search on possible strategy differences between rural and urban communities, so I will only emphasize the need to examine this issue. Huberman and Crandall (1983) suggest that rural districts need more help in finding out about available innovations, and more assistance in front-end training because they do not have the district staff or access to information that urban districts do. One would expect also that different approaches to the community would be needed. There is some evidence that once a process is initiated, rural schools are easier to work with because they are smaller and more conducive to establishing the kinds of staff interaction necessary for success (Huberman & Crandall 1983).

I have alluded to four problematic dilemmas throughout the paper. First, what should be done about voluntary versus involuntary participation? My response has been manifold: go with volunteers, because there are usually enough; in inviting volunteers make it clear that participation by all is eventually expected; make the invitation as attractive as possible by stressing the resources for assistance and collaboration among users; mandate some involvement if you will, but realize that

more intensive assistance and direction will be required; use peers to influence other peers (within schools and across schools); use school leadership as a leverage for change (through in-service, selection criteria, transfers, etc.).

Second, should one use small-scale or large scale approaches? Again there is no clear answer. In fact, there are two aspects of scale-the sheer numbers (of teachers, schools, etc.) and the magnitude or degree of significance or complexity that the change represents individual users. My preference is to go with changes of significant complexity but to do it through incremental development, starting with a small number of schools and spreading outward.

Third, what about fidelity versus variation? Huberman and Crandall's (1983) recommendation is that, when working with a validated innovation, one should emphasize faithful implementation at the initial stages because most users will reduce the degree of change. Variation and further developments can be accommodated at later stages. On the other hand, if one is not working with well-proven innovations (or effective schools projects), or if one is deliberately emphasizing school autonomy, variation at the outset should be fostered because this is tantamount to developing the innovation through use (see Berman 1980).

Fourth, the question of where to start is crucial, but the answer is by no means clear. Research reviewed in this paper frequently advocates the development of a school plan in order to achieve consensus, focus, and a sense of direction. But we do not know whether the early development of a formal plan is a better method for achieving consensus compared, for example, with more informal activities designed to promote observation of other teachers' work, interaction, and dialogue for some time prior to the formulation of any plan (Good & Brophy, in press). Referring to the discussion of "leadership feel

for the process," the effective superintendent looks for a number of leverage points, depending on the conditions, and employs several simultaneously working with principals, professional development of teachers, figuring out ways of maximizing interaction, creating commitment in short, establishing a number of footholds, promoting them incrementally in mutually reinforcing ways in an attempt to generate school improvement. The advice is to start small and expand as one gets better at the change process through experience in a particular setting. The guidelines in this paper present clear directions and suggestions, but the process is fraught with dilemmas and subtleties.

To summarize, our knowledge of school improvement and implementation is becoming increasingly sophisticated. The specific strategies that work are eminently sensible. Putting them together in a particular setting on an ongoing basis is difficult and requires leadership with both a commitment to and skills in the change process. In some situations of high conflict and internal or external crises (sometimes called turbulent environments), it will not be possible to bring about any of the improvements described in this paper, until the issues of conflict are addressed or subside. Timing, readiness, and preconditions must be considered. When successful improvements are accomplished, they involve individuals working in small groups and other collective ways, attaining technical mastery, a sense of success, and new meanings.

Strategies of the future, above all, should be based on collective professional development within the school rather than on individualistic professional autonomy or its opposite, excessive dependence, which have characterized school norms and practices of the past.

Note

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