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ABSTRACT

Research for Better Schools and a Maryland county school district developed a school improvement program to examine the relationship between the program and subsequent improvement. The program involved a self-assessment survey, choosing goals for the following year, assigning a committee of practitioners to lead the program, executing the plan created by the committee, and completing the self-assessment survey at the end of the school year to analyze the amount of improvement. The Dimensions of Excellence Scales (DoES) was employed to assess program effects and the School Survey was employed to measure program implementation. The study reveals that every school except one significantly improved; schools that achieved high faculty completion rates on the DoES made only moderate school improvement; no relationship seemed to exist between participation in the program and the amount of improvement; improvement was affiliated with the original pretest status; and schools with better pretest scores attracted more faculty personnel to the program. Essentially, no consistent relationship was evident between involvement in the program and school improvement. Future school improvement efforts should consider the context of the school. Sixteen references and 7 tables are included. (RG)

Critical Ingredients for School Improvement Efforts

by

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Over the past decade, countless studies have been conducted that examine the effectiveness of elementary schools. The majority of these studies has attempted to identify characteristics of effective schools (Edmonds, 1979; Wilson & Corcoran, 1987), differentiate effective from ineffective schools (Austin, 1978; Brookover & Lezotte, 1979; Edmonds & Frederiksen, 1978), or discuss the validity of these efforts (Brookover, 1987; Purkey & Smith, 1983; Stedman, 1987). Very little of the school effectiveness literature has reported on the systematic efforts of schools to improve their status on some continuum (from ineffective to effective) associated with effective school practices and even fewer to relate program implementation indicators with outcome measures (Miles, Farrar, & Neufeld, 1983; Purkey & Smith, 1983). Although there have been numerous school district initiatives aimed at such a purpose (Miles, et al, 1983), these have typically not been reported in the research literature. The current paper reports on one such effort to investigate the relationship between participation in a school improvement program and subsequent school improvement.

Background

In late 1984, a Maryland county school district and Research for Better Schools (RBS) agreed to work together to develop a comprehensive school improvement program following an action research model. Participating schools in the district would complete the following steps as part of this program:

- complete a self-assessment survey on eight dimensions associated with effective elementary school practices
- review the resulting profile of the school on the eight dimensions
- select a challenge dimension on which to focus the school's work for the coming year
- appoint a committee of administrators and classroom teachers to lead each school's effort to improve its performance on the challenge dimension
- carry out a plan developed by the committee to improve the school's performance on the challenge dimension
- complete the self-assessment survey at the end of the school year to determine the extent of the school's improvement on the challenge dimension.

The first two activities were structured by the program to occur at general school-wide faculty meetings; the remaining activities were not structured formally by the program and so allowed individual schools to organize the program to meet their own needs. Individual schools could choose to focus their work on any of eight dimensions--school climate, leadership, teacher behavior, curriculum, monitoring and assessment, student behavior and discipline, staff development, and parent involvement. However, schools typically elected to work on one of their lower scoring dimensions. The program relied heavily on the involvement of classroom teachers in the selection of the challenge dimension as well as the development and conduct of the school's improvement plan to address the challenge dimension. This program is described elsewhere (RBS, 1987) and so will not be described in more detail here.

Methodology

As noted above, this paper examines the progress of individual schools involved in a school improvement effort. More specifically, this paper attempts to relate program implementation indicators to changes in the six schools' status on their challenge dimension. Three of the schools (Schools A, B, and C) volunteered to participate in the program during its first year; the other three schools (Schools D, E, and F) joined the program in its second year. This paper examines data gathered only during the first year of the schools' participation in the program.

A variety of strategies was used to measure program implementation and effects in the six schools. Of most interest to this paper are school administrator and faculty responses to two instruments--the Dimensions of Excellence Scales (DoES) and the School Survey.

The DoES was used to measure program effects. Specifically, the DoES measures an individual school's status on eight dimensions associated with effective elementary school practices. In completing the survey, respondents are asked to rate their school (using a 5-point scale) on a series of items (16-33 items per dimension) associated with effective practices on each of the eight dimensions. For example, some of the items used to assess the school's performance on the school climate dimension include:

- the school has an orderly, business-like atmosphere
- the school motivates students to learn
- the principal has a high level of visibility.

Respondent ratings are aggregated by dimension and reported as raw scores and scale scores (based on the district mean). Individual school profiles are returned to the schools for review and use in focusing their work for the coming year or in assessing the outcomes of their work at the end of the school year.

The DoES was completed at the beginning of participation in the program and then at the end of each year of participation. In the case of the six schools, the DoES was completed by the principal, classroom teachers, and instructional aides assigned to each school. Specific numbers completing the DoES are reported below.

Table 1

Numbers of School Personnel Completing the DoES

School	Pretest	Posttest
A	2)	27
B	36	40
C	38	33
D	23	27
E	52	54
F	65	69

Differences in the numbers from pretest to posttest represent changes in staff assignments and absenteeism on days when the DoES was completed. In order to protect the anonymity of individual staff members, there was no attempt to match responses from one administration to the next. Instead, a school's profile reflects the aggregated responses of the school administrators and faculty who completed the DoES at a given time.

The School Survey was used to assess program implementation. It was developed to document school personnel's involvement and their ratings of

the conduct and impact of the program in their school. The survey is divided into a number of sections. In addition to collecting basic demographic data (i.e., name of school and dimension on which the school focused its work), the survey sections collect information on the following broad areas:

- participation in various generic program activities during the school year
- provision of various supports within the school building necessary for effective implementation of the program
- importance and value of school's effort related to the challenge dimension.

The items are generally statements on which respondents are asked to report on their involvement (i.e., participation in program activities) or to rate the performance of their school (i.e., sharing of program leadership, relevance of strategies). Respondent ratings are aggregated for each of the survey items by school and means and standard deviations calculated and reported.

The School Survey was completed by school administrators and faculty at the end of each year of participation in the program. However, somewhat different samples of school personnel completed the survey. In Spring, 1986 the survey was completed at the three schools that joined the program during its first year (Schools A, B, and C) by samples of school personnel, generally representing the principal and approximately one-third to one-half of the faculty. In Spring, 1987 the survey was distributed to all personnel assigned to the second wave of schools (Schools D, E, and F). Table 2 summarizes the number and percent of school personnel who completed the survey by school building.

Table 2

Number and Percent of School Personnel Completing the School Survey

School	Number	Percent
A	16	55.2
B	13	32.5
C	14	36.8
D	17	62.9
E	34	63.0
F	62	89.9

No systematic bias was found in the sample of faculty completing the survey during the first year.

Analysis and Results

Independent "t"-tests were conducted to determine if the six schools made significant improvements on their respective challenge dimensions. All but one school (School C) made statistically significant gains. Interestingly, the magnitude of the changes was not related to volunteer/non-volunteer status (see Table 3).

Table 3

Changes in DoES Challenge Dimension Scores

School	Challenge	Pretest	Posttest	Gain	t	p
A	Climate	4.06	4.38	.32	2.91	<.05
B	Behavior & Discipline	4.06	4.46	.40	3.08	<.05
C	Parent Involvement	3.50	3.59	.09	.60	NS
D	Behavior & Discipline	4.22	4.82	.60	5.01	<.05
E	Climate	3.79	3.92	.13	1.30	<.10
F	Climate	3.28	3.69	.41	4.07	<.05

The two largest gains were obtained by Schools D and F (.60 and .41 respectively) which registered the highest and lowest starting points on their respective challenge dimensions. The two smallest gains were achieved by two of the schools with low pretest scores (Schools E and C, .13 and .09 respectively). These data support the absence of a ceiling effect.

The next set of analyses investigated the relationship between performance gains on the DoES challenge dimension and participation in program activities by school personnel (obtained from responses to the School Survey). It was hypothesized that the magnitude of school improvement would correlate positively with the percentage of faculty participating in program activities. In order to test this hypothesis, Spearman rank order correlations (Siegel, 1956) were calculated. As reported in Table 4, only one significant rank correlation was found. Completion of the DoES by school personnel (a program-structured activity) was negatively correlated with gains on the DoES challenge dimension. In other words, schools that achieved high faculty completion rates on the DoES made only modest gains on the school improvement measure. No consistent relationship was found between participation in the other six program activities and the magnitude of school improvement (as measured by gains on the DoES challenge dimension).

In order to investigate the relationship between school implementation of the program and subsequent improvement on the challenge dimension more fully, the six schools were divided into two groups (i.e., top three, bottom three) based on their initial scores on the DoES challenge dimension selected by the school. These rankings are presented in Table 5 along with

Table 4

Relationship Between Program Participation and Subsequent School Improvement Gain

Percent of School Personnel Participating in Program Activities

School	Completed DoES	Discussed DoES results	Influenced selection of challenge	Analyzed/ defined challenge	Influenced strategies to address challenge	Attended staff development	Implemented strategies
A	93.8	75.0	43.8	43.8	50.0	81.3	81.3
B	84.6	84.6	46.2	53.8	38.5	76.9	92.3
C	100.0	100.0	35.7	35.7	14.3	64.3	64 3
D	76.5	64.7	29.4	17.6	23.5	52.9	58.8
E	97.1	61.8	14.7	17.6	17.6	32.4	44.1
F	88.9	60.3	7.9	15.9	7.9	17.5	38.1
r^s	-.94	-.49	-.49	-.03	-.09	-.26	-.49
p	$<.05$	NS	NS	NS	NS	NS	NS

the gains each school achieved during the first year of their participation in the program.

Table 5

Rankings of Six Schools Based on Pretest DoES Scores

Rank	Pretest	Gain
1	School D (4.22)	.60
2.5	School B (4.06)	.40
2.5	School A (4.06)	.32
4	School E (3.79)	.13
5	School C (3.50)	.09
6	School F (3.28)	.41

A Mann-Whitney U test (Siegel, 1956) was conducted to determine if there was any significant difference between the gains achieved by the two groups. The results indicated that improvement was positively associated with initial status on the pretest measure ($p<.05$). In other words, the top group of schools was found to achieve greater gains than the bottom group of schools. It's also interesting to note that only minor changes occurred in the relative rankings of the six schools; none of the six schools moved from either the high or low group to its counterpart.

Given this finding, analyses to determine the relationship between program participation and performance gains on the challenge dimension were repeated to see if there were any significant differences between the two groups. Mann-Whitney U tests (Siegel, 1956) were used to test for differences. As reported in Table 6, the top group surpassed the bottom group on all six school-structured program activities. In general, they

Table 6

Relationship Between Group Membership and Participation in Program Activities

Percent of School Personnel Participating in Program Activities

School	Completed DoES	Discussed DoES results	Influenced selection of challenge	Analyzed/ defined challenge	Influenced strategies to address challenge	Attended staff development	Implemented strategies
D	76.5	64.7	29.4	17.6	23.5	52.9	58.8
B	84.6	84.6	46.2	53.8	38.5	76.9	92.3
A	93.8	75.0	43.8	43.8	50.0	81.3	81.3
E	97.1	61.8	14.7	17.6	17.6	32.4	44.1
F	88.9	60.3	7.9	15.9	7.9	17.5	38.1
C	100.0	100.0	35.7	35.7	14.3	64.3	64.3
p[a]	NS	NS	<.10	<.10	<.05	<.10	<.10

[a]Probabilities are based on one-tailed Mann-Whitney U tests.

were able to organize program activities to attract and involve higher percentages of their faculties. This is most striking in attendance at staff development activities (designed to address the challenge dimension) and individual teacher implementation of strategies. Both of these are recognized as critical factors in improving the performance of the school. No significant differences were found for the two program-structured activities (complete the DoES and discuss the results).

Additional analyses were conducted to examine the relationship between performance on the DoES and school personnel's ratings of the conduct of the program in their schools (again obtained from responses to the School Survey). Mann-Whitney U tests were performed for all 20 school conduct indicators. As before, the top group of schools received consistently higher ratings than did the bottom group of schools (see Table 7 on the next page); 13 of the 20 produced significant findings in favor of the top group. In other words, personnel from the top group rated their schools' conduct of the program more positively than did personnel from the bottom group. Of most importance was faculty ratings of the importance of the challenge dimension, principal support of the school improvement effort, staff ownership, and availability of resources.

Discussion

The original impetus for conducting this study was to test the hypothesis that the magnitude of school improvement (as measured by gains on the challenge dimension) would correlate positively with faculty participation in the school improvement program. More simply, schools that

Table 7

School Personnel Ratings[a] of Program Conduct in Their Schools

Indicator	School D	School B	School A	School E	School F	School C	p[b]
Challenge dimension important	4.71	4.62	4.56	4.52	4.46	3.79	<.05
Considered several alternatives	3.81	3.62	4.63	4.21	3.55	4.07	NS
Strategies relevant	4.59	4.62	4.63	4.55	3.77	4.14	<.05
Enjoyed participation	4.00	4.23	4.69	4.42	3.22	3.74	NS
Worth the work	4.12	4.38	4.56	4.39	3.67	3.29	NS
Knew more afterwards	4.71	4.54	4.56	3.36	3.46	3.57	<.05
Clear differences now	4.80	4.31	4.56	4.42	3.44	3.21	<.10
Improved the school	4.53	4.23	4.63	4.30	3.54	3.36	<.10
Principal valued program	4.94	4.86	4.81	4.59	3.90	4.45	<.05
Principal supported program	5.00	4.92	4.78	4.68	3.68	4.67	<.05
Principal expected implementation	4.88	4.92	4.66	4.42	4.18	4.00	<.05
Shared leadership	4.82	4.48	4.06	4.32	3.60	4.00	<.10
Program effectiveness assessed	4.56	4.48	4.00	4.27	3.40	4.42	NS
Staff understood program	4.76	4.47	4.07	4.12	3.84	4.08	NS
When asked, all participated	4.76	4.53	4.26	4.27	4.00	4.38	NS
2/3 involved	4.81	4.84	4.35	4.12	3.72	4.50	<.10
Staff ownership	4.13	4.00	3.76	3.74	2.95	3.50	<.05
Harmony about program	4.65	4.23	4.28	4.38	3.38	4.67	NS
Roles clear	4.59	4.23	4.12	4.15	3.38	4.00	<.10
Necessary resources allocated	4.59	4.35	4.20	3.82	3.67	4.00	<.05

[a]Mean ratings can range from a high of 5.00 (strongly agree) to a low of 1.00 (strongly disagree).

[b]Probabilities are based on one-tailed Mann-Whitney U tests.

involve more staff in more program activities would show greater improvement. No support was found for this hypothesis. No consistent relationship was found between program participation and subsequent school improvement gains. However, the sample size for this study was extremely small and examined program implementation for a relatively short period of time. Additional research is needed in order to test this hypothesis more fully.

Instead, the results prove the old adage, "the good just keep getting better." In this study, the schools that started ahead in the race for elementary excellence stayed ahead. They were able to use the program more effectively, involve more staff in program activities, develop more relevant strategies to address their schools' challenge dimension, and establish leadership and support for the program. These actions translated into higher gain scores on their respective challenge dimensions.

Five of the six schools were able to use the program to make significant improvements in their status on the chosen challenge dimension. However, the bottom three schools were unable to make up initial starting differences between them and the top three schools. These findings are similar to Chapter 1 findings in which interventions implemented consistently across all students (i.e., Chapter 1 and non-Chapter 1) do not eliminate differences between the two groups. In order to reduce the gap, appropriate interventions must be designed that address the differential performance among students (Slavin, 1987). This rule also applies to school improvement efforts, especially those that seek to reduce the disparity among schools in a district.

The message is very simple. School improvement efforts must pay attention to the context of the school. In this case, the context was reflected in the pretest performance of the individual schools on the DoES. Much of the second and third generation school effectiveness/improvement literature has cautioned educators not to forget this message (Corbett, Dawson, & Firestone, 1984; Lieberman, 1986; McLaughlin,1978; Purkey & Smith, 1983). However, up to now, few have reported data to back this point. Although this study involved a very small sample, it does provide some empirical support. Good schools will be able to take most programs, run with them, and show improvement. Other schools may be able to use these same programs, but require additional assistance if these programs are going to have the same pay-off. This message should not be forgotten in the design and conduct of school improvement efforts.

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