

## THE EFFECTS OF TEACHER EFFICACY AND INTERACTIONS AMONG EDUCATORS ON CURRICULUM IMPLEMENTATION

MARYBETH G. POOLE, *Camp Lejeune Dependents' Schools*  
KAREN R. OKEAFOR, *University of New Orleans*

Although the needs and aspirations of teachers, students, and society in general have changed, the organization of today's schools and the instructional methods used are remarkably similar to the schools of the 1940s and earlier. Procedures for instituting change in public organizations have been documented since the 1930s.<sup>1</sup> Educational change has also been extensively reported in the literature.<sup>2</sup> Change in schools, though, has progressed slowly. Most adopted educational innovations are never carried out.<sup>3</sup> For example, in reviewing studies of educational change conducted in the last 25 years, theorists conclude that most curriculum development and educational change "adoptions" of the 1960s and 1970s were not put into practice.<sup>4</sup> Implementation—or the extent to which teachers and students change their beliefs, behavior, or use of resources—continues to puzzle researchers and practitioners. The purpose of this study was to examine the effects of several school-level variables on the implementation of a changed curriculum.

---

<sup>1</sup>See, for example, Paul R. Mort and Frances G. Cornell, *American Schools in Transition* (New York: Teachers College, Columbia University, 1941); Richard O. Carlson, *Adoption of Educational Innovations* (Eugene: Center for the Advanced Study of Educational Administration, University of Oregon, 1965); Paul E. March, "The Physical Science Study Committee: A Case History of Nationwide Curriculum Development" (doctoral dissertation, Harvard University, 1963).

<sup>2</sup>See, for example, David P. Crandall and Associates, *People, Policies, and Practices: Examining the Chain of School Improvement*, Volumes I-X (Andover, MA: Network, 1982); Michael Fullan, *The Meaning of Educational Change* (New York: Teachers College Press, 1982); Michael Fullan and Alan Pomfret, "Research on Curriculum and Instruction Implementation," *Review of Educational Research* 47 (No. 2, 1977): 335-397; Charles Silberman, *Crisis in the Classroom* (New York: Vintage Books, 1970).

<sup>3</sup>Michael Fullan, *The Meaning of Educational Change* (New York: Teachers College Press, 1982).

<sup>4</sup>Michael Fullan and Alan Pomfret, "Research on Curriculum and Instruction Implementation," *Review of Educational Research* 47 (No. 2, 1977): 335-397; Charles Silberman, *Crisis in the Classroom* (New York: Vintage Books, 1970).

## CONCEPTUAL FRAMEWORK

An assortment of models of the change process are current in the literature.<sup>5</sup> Three broad phases of change, however, are common to the most prominent theories: Phase 1, the decision process; Phase 2, implementation or initial use, and Phase 3, continued use or institutionalization. Fullan has formulated a conceptual framework for investigating the implementation of educational change.<sup>6</sup> He contends that school-level factors influencing the level of implementation of adopted programs include the role of the principal, the quality and frequency of collegial interactions among educators, and teachers' sense of efficacy or belief that they have the skills required to help all students.

Some organizational theorists describe schools as loosely coupled organizations with weak linkages between components of the systems, that is, teachers typically work in relative isolation from administrators and other teachers.<sup>7</sup> These theorists suggest that change in educational organizations is affected by the communication linkages between participants in the organization.<sup>8</sup> For example, Weick maintains that bringing about major change in a loosely coupled system requires time and provisions for participants to discuss the change with a number of persons.<sup>9</sup> Moreover, researchers have shown that the principal strongly influences the likelihood of change.<sup>10</sup> After reviewing the literature, Lieberman and Miller conclude that "the principal is the

---

<sup>5</sup>See, for example, Paul Berman and Milbrey Wallin McLaughlin, *Federal Programs Supporting Educational Change, Volume II: Factors Affecting Implementation and Continuation*, Report No. R-1589/7 HEW (Santa Monica, CA: Rand Corporation, 1977); Shella Rosenblum and Karen Louis, *Stability and Change: Innovation in an Educational Context* (Cambridge, MA: ABT Associates, 1979); Robert Yin, K. Herald, and M. Vogel, *Tinkering with the System* (Lexington, MA: D. C. Heath, 1977); Gerald Zaltman, R. Duncan, and J. Holbeck, *Innovations and Organizations* (Toronto: Wiley, 1973).

<sup>6</sup>Michael Fullan, *The Meaning of Educational Change* (New York: Teachers College Press, 1982).

<sup>7</sup>For example, John W. Meyer and Brian Rowan, "Institutionalized Organizations: Formal Structure as Myth and Ceremony," *American Journal of Sociology* 83 (September 1977): 340-363; Karl E. Weick, "Educational Organizations as Loosely Coupled Systems," *Administrative Science Quarterly* 21 (Spring 1976): 1-19.

<sup>8</sup>Ibid.

<sup>9</sup>Karl E. Weick, "Educational Organizations as Loosely Coupled Systems," *Administrative Science Quarterly* 21 (Spring 1976): 1-19.

<sup>10</sup>See, for example, Paul Berman and Milbrey Wallin McLaughlin, *Federal Programs Supporting Educational Change, Volume II: Factors Affecting Implementation and Continuation*, Report No. R-1589/7 HEW (Santa Monica, CA: Rand Corporation, 1977); David P. Crandall, "The Teacher's Role in School Improvement," *Educational Leadership* 41 (November 1983); John Emrick and Susan Peterson, *A Synthesis of Findings Across Five Recent Studies in Educational Dissemination and Change* (San Francisco: Far West Laboratory, 1978); Gene E. Hall and Susan R. Loucks, *Program Definition and Adaptation: Implications for Inservice* (Austin: Research and Development Center for Teacher Education, University of Texas, 1980).

critical person in making change happen"<sup>11</sup> Also, the nature of work relationships among teachers appears to be related to change implementation.<sup>12</sup>

A third school-level characteristic, teachers' sense of efficacy, is rooted in Bandura's conceptualization of self-efficacy.<sup>13</sup> He argues that through life experiences, people develop a generalized expectancy about action-outcome contingencies, as well as a more specific belief in their own coping abilities, or self-efficacy. Personal efficacy is the conviction that one can successfully execute the behavior required to influence outcomes. Individuals must believe that they can influence outcomes or they will not initiate and persist in relevant behaviors. Outcome expectancy essentially reflects the degree to which teachers believe the environment can be controlled—the extent to which students can be taught regardless of family background, IQ, and school conditions. Bandura predicts that people with both high efficacy and outcome expectancy will respond with active, assured responsiveness and that people low on these variables will give up readily if they do not get results.

#### STATEMENT OF THE PROBLEM

Educational change takes place when improved programs or methods are implemented or actually used in classrooms. However, because of the structure of schools, implementation frequently is difficult. Schools traditionally are organized with individual teachers working relatively autonomously in cellular classrooms. Teachers receive little financial incentive or opportunity for social recognition for better performance. Therefore, the level of implementation of changed programs largely depends on the characteristics and motivations of the teachers. Identifying teacher characteristics that influence the implementation of changed educational programs may lead to a better understanding of the process of educational change and may result in increased classroom use of the changed curriculum.

The purpose of this study was to examine whether three school-level factors identified in Fullan's theory of educational change would affect implementation levels in a curriculum-change process.<sup>14</sup> The effects of task-relevant interactions between teachers and administrators, teachers' sense of teaching

---

<sup>11</sup>Ann Lieberman and Lynne Miller, *Teachers, Their World, and Their Work* (Alexandria, VA: Association for Supervision and Curriculum Development, 1984), p. 83.

<sup>12</sup>See, for example, H. Dickson Corbett and Joseph J. D'Amico, "No More Heroes: Creating Systems to Support Change," *Educational Leadership* 44 (September 1986): 70-72; John I. Goodlad, *A Place Called School* (New York: McGraw Hill, 1984); Judith W. Little, "Norms of Collegiality and Experimentation: Workplace Conditions of School Success," *American Educational Research Journal* 19 (Fall 1982): 325-340; Dan C. Lortie, *Schoolteacher: A Sociological Study* (Chicago: University of Chicago Press, 1975).

<sup>13</sup>Albert Bandura, "Self-Efficacy: Toward a Unifying Theory of Behavioral Change," *Psychological Review* 84 (No. 2, 1977): 191-215.

<sup>14</sup>Michael Fullan, *The Meaning of Educational Change* (New York: Teachers College Press, 1982).

efficacy, and task-relevant interactions between teachers on the use of changed curriculum were analyzed.

### HYPOTHESES

Assuming that school-change processes are frequently not implemented uniformly and that characteristics of teachers and work relationships between educators may affect how far school-change programs are implemented, we formulated three hypotheses.<sup>15</sup>

1. The level of curriculum implementation can be predicted by teachers' sense of teaching efficacy, task-relevant interactions among teachers, and task relevant interactions between teachers and administrators.

2. There will be a significant difference ( $p < .05$ ) in the mean level of implementation of the adopted curriculum between teachers reporting a higher sense of teaching efficacy and teachers reporting a lower sense of teaching efficacy.

3. There will be a significant difference ( $p < .05$ ) in the mean level of implementation of the adopted curriculum between teachers reporting more task-relevant interaction among teachers and teachers reporting less task-relevant interaction among teachers.

3A. Task-relevant interactions between teachers and administrators, as perceived by teachers, will affect the implementation of the adopted curriculum.

3B. There will be a significant statistical interaction ( $p < .05$ ) between task-relevant interactions among teachers and teachers' sense of teaching efficacy on the mean level of implementation of the adopted curriculum.

### OPERATIONAL DEFINITIONS

*Teachers' sense of teaching efficacy.* A seven-item subscale of the Teacher Efficacy Scale (TES) was used to measure teachers' sense of teaching efficacy. This scale was designed to measure teachers' belief that their ability to bring about student learning is limited by external factors, the home environment, family background, and parental influence.<sup>16</sup> Sense of teaching efficacy is measured by asking respondents to indicate their level of agreement with various statements, for example: "A teacher is very limited in what he or she can achieve because students' home environments largely influence their

<sup>15</sup>See, for example, Michael Fullan, *The Meaning of Educational Change* (New York: Teachers College Press, 1982), Michael Fullan and Alan Pomfret, "Research on Curriculum and Instruction Implementation," *Review of Educational Research* 47 (No. 2, 1977): 335-397, John W. Meyer and Brian Rowan, "Institutionalized Organizations: Formal Structure as Myth and Ceremony," *American Journal of Sociology* 83 (September 1977): 340-363, Karl E. Weick, "Educational Organizations as Loosely Coupled Systems," *Administrative Science Quarterly* 21 (Spring 1976): 1-19.

<sup>16</sup>Sherril Gibson and Myron H. Dembo, "Teacher Efficacy: A Construct Validation," *Journal of Educational Psychology* 76 (No. 4, 1984): 569-582.

achievement," and "If students are not disciplined at home, they aren't likely to accept any discipline at school." Gibson and Dembo have supported construct and discriminant validity, and they report an internal consistency reliability of .75 on the TES subscale.<sup>17</sup>

*Task-relevant interactions among teachers.* The combined z scores of two instruments, Communication. Teacher with Teacher (CTT) and Staffing Pattern Inventory (SPI), were used to measure teachers' interactions. The SPI was developed by Bridges and Hallinan to measure teacher joint planning in 13 task relevant activities, including teacher joint planning of lessons, use of instructional materials, and teaching of lessons.<sup>18</sup> The response categories range from 0 to 5+ times per month. The SPI is scored by summing a teacher's responses to each item. Internal consistency reliabilities range from .90 to .95, the test retest reliability is .74. Miskel, McDonald, and Bloom have reported the presence of construct, convergent, and predictive validity of the SPI.<sup>19</sup>

The CTT survey was developed by Bridges and Hallinan to measure the nature and frequency of teacher with teacher communication.<sup>20</sup> Only the five task relevant items were used in this study. Respondents were asked how often they talk to other teachers about such matters as "student reactions to a specific lesson" and "getting instructional resources or supplies." Response categories on the CTT are "daily," "several days a week," "once a week," "once or twice a month," "once or twice a semester," and "never." The responses are weighted to approximate the absolute magnitude of differences among the categories. daily (5.0), several times a week (2.5), once a week (1.0), once or twice a month (0.5), once or twice a semester (0.25), and never (0). Scores on the CTT for each teacher were determined by summing the scores for all items. Miskel, McDonald, and Bloom have reported the internal consistency at .79 and a test-retest reliability of .73, they also report construct, convergent, and predictive validity.<sup>21</sup>

*Interactions between teachers and administrators.* The Communication: Teacher with Principal (CTP) survey was used to operationally define teachers' perceptions of teacher-with-principal interactions. The CTP was adapted from the CTT by Miskel, McDonald, and Bloom, who reported an internal consistency reliability of .87; a test-retest reliability of .55; and construct, convergent,

---

<sup>17</sup>Ibid.

<sup>18</sup>Edwin M. Bridges and Maureen T. Hallinan, "Subunit Size, Work System Interdependence, and Employee Absenteeism," *Educational Administration Quarterly* (Spring 1978): 24-42

<sup>19</sup>Cecil G. Miskel, David McDonald, and Susan Bloom, "Structural and Expectancy Linkages Within Schools and Organizational Effectiveness," *Educational Administration Quarterly* 19 (Winter 1983): 49-82.

<sup>20</sup>Edwin M. Bridges and Maureen T. Hallinan, "Subunit Size, Work System Interdependence, and Employee Absenteeism," *Educational Administration Quarterly* (Spring 1978): 24-42.

<sup>21</sup>Cecil G. Miskel, David McDonald, and Susan Bloom, "Structural and Expectancy Linkages Within Schools and Organizational Effectiveness," *Educational Administration Quarterly* 19 (Winter 1983): 49-82.

and predictive validity for the scale.<sup>22</sup> Respondents are asked how often they talk to school administrators about such matters as "general curriculum plans for a class" and "student reactions to a particular lesson." Answer categories and scoring are the same as the CTT.

*The dependent variable.* Before the start of the study, newly developed curriculum guides in the content areas of language arts, mathematics, science, social studies, and physical education were distributed to all kindergarten, 1st, 2nd, and 3rd grade teachers in the target school system. Implementation of curriculum described in the guides was the dependent variable in this study. An investigator-developed measure, the Content Checklist (CC), was used to measure the level of classroom implementation of the new curriculum as reflected in teachers' lesson plans. Lesson plans with learner objectives and activities were required by state regulation and school system policy. School administrators were charged to monitor the congruence of lesson plans and classroom instruction. A team of administrators visited each classroom, observed instruction, and reviewed lesson plans annually. State and school system documents and the curriculum guides were reviewed to determine the criteria used to assess implementation.

The curriculum writers were asked to identify the main components of the new curriculum. Four criteria were selected to assess implementation. (1) scheduling, (2) objectives, (3) activities and resources, and (4) teaching philosophy and methods. Each criterion was awarded 0, 1, or 2 points per content area, based on evidence of implementation written in teachers' lesson plans. A rating of 2 indicated an acceptable level of meeting the criterion, a rating of 1 indicated there was some evidence of the criterion but an acceptable level was not met, and a 0 rating indicated no evidence of the criterion in the lesson plans. Scores on the CC could range from 0 to 32 (4 criteria  $\times$  4 content areas  $\times$  2 points per criterion).

A pilot study to examine the validity of the CC was conducted. Eight teachers of kindergarten through 3rd grade were interviewed by the researcher about their use of the new curriculum, and copies of their lesson plans were collected. The Levels of Use (LoU) focused interview was used to assess the teachers' levels of implementation of the new curriculum.<sup>23</sup> The LoU is a 20-minute focused interview using a branching format to determine, through conversation, how individual teachers are using a specific educational program. Interrater reliability ranging from .87 to .96 has been reported for the LoU.<sup>24</sup> Use of curriculum, as determined by the LoU, was categorized into three overall levels: (1) nonuse (Level 0), (2) some evidence of use but not meeting minimum criteria (Levels 1, 2, 3), and (3) meets minimum criteria

---

<sup>22</sup>Ibid.

<sup>23</sup>Susan F. Loucks, Beulah W. Newlove, and Gene E. Hall, *Measuring Levels of Use of the Innovation: A Manual for Trainers, Interviewers, and Raters* (Austin: University of Texas, 1976)

<sup>24</sup>Ibid.

(Levels 4A–6). Levels of the LoU instrument have been collapsed into three levels by previous researchers.<sup>25</sup>

The teachers' lesson plans were rated according to the CC criteria. The LoU rating for each subject was then compared to the teachers' use of the curriculum guides as measured on the CC. A correlation of .80 resulted.

## METHOD

The school system selected for this study was a suburban-rural public school system in a southeastern state with a student enrollment of 26,000. The school system was involved in an ongoing program of curriculum revision, including the development and implementation of local curriculum guides for kindergarten through 3rd grade in the areas of language arts, mathematics, social studies, science, and physical education. All 427 teachers of kindergarten, 1st, 2nd, and 3rd grades in 20 schools were included in the sampling pool.

A sample of 220 regular education teachers was selected randomly from a current roster of all teachers employed. The sample was stratified by grade level and included 62 teachers per grade for 1st, 2nd, and 3rd grades and 34 kindergarten teachers.

Data were collected using an adaptation of the Dillman mail-survey-technique.<sup>26</sup> A cover letter and a booklet containing the research questionnaires were mailed to the school address or placed in the teachers' school mailboxes. Teachers were asked to complete the questionnaires, attach a copy of their lesson plans for a designated week, and mail them to a university address using a preaddressed, stamped envelope. Nonrespondents were mailed a second survey two weeks after the first mailing. A third questionnaire was mailed to nonrespondents four weeks after the first mailing. Neither the 220 teachers nor their principals had previous knowledge of this research or the intended use of the lesson plans.

In all, 140 teachers (63.6 percent) responded to the mail survey; 125 responses (57 percent) were used. The other 15 responses could not be used because the requested lesson plans were either incomplete or not included. Typical respondents were tenured teachers of kindergarten through 3rd grade with baccalaureate degrees (see Table 1).

Multiple- and stepwise-regression analyses were conducted to determine the individual contributions of the independent variables, teachers' sense of efficacy and task-relevant interactions among teachers, and the covariate, interactions between teachers and administrators, to the prediction model. A subsequent  $2 \times 2$  analysis of variance (ANOVA) and a  $2 \times 2$  analysis of

---

<sup>25</sup>Michael Fullan, *The Meaning of Educational Change* (New York: Teachers College Press, 1982).

<sup>26</sup>Don A. Dillman, *Mail and Telephone Surveys* (New York: Wiley, 1978).

Table 1. Description of the Sample

Variable	Frequency	Percent
Grade taught		
Kindergarten	22	17.6
First	37	29.6
Second	37	29.6
Third	29	23.2
Highest degree held		
Bachelor's	84	67.2
Master's	32	25.6
Master's + 30 credits	9	7.2
Not tenured	36	29
Tenured	88	71
Years of experience		
1	0	0
2	5	4
3	10	8
4	4	3.2
5	7	5.6
6 to 9	24	19.2
10+	75	60
<i>Mean = 12.15, Standard Deviation = 7.06, Median = 10.5</i>		
Years in present position		
1	10	8
2	20	16
3	18	14.4
4	5	4
5	12	9.6
6 to 9	28	22.4
10+	30	25.6
<i>Mean = 7.48, Standard Deviation = 6.54, Median = 4.7</i>		

covariance (ANCOVA) were used to determine which variables contributed to the use of changed curriculum.

## RESULTS

Pearson product-moment correlations were used for initial analyses of the relationships between the variables. Task-relevant interactions among teachers was significantly correlated ( $r = .24, p < .05$ ) to curriculum-guide implementation, the dependent variable (see Table 2). Interactions between administrators and teachers, the covariate, was significantly related to interactions among teachers ( $r = .49, p < .0001$ ). There were no other significant correlations. Multicollinearity was not a threat in this study. Means and standard deviations for each instrument are reported in Table 3.

The level of implementation of newly developed kindergarten through 3rd-grade curriculum in the content areas of language arts, mathematics, physical education, science, and social studies, the dependent variable, was

**Table 2. Intercorrelations Between Curriculum Implementation, Teaching Efficacy, Interactions Among Teachers, and Task-Relevant Interactions Between Teachers and Administrators**

Variable	Teaching efficacy	Interactions among teachers	Teacher-administrator interactions
Curriculum implementation	.11	.24*	.14
Teacher efficacy		.08	.03
Interactions among teachers			.49**

NOTE. Interactions among teachers is the sum of the scores on the Staffing Pattern Inventory and the Communication: Teacher with Teacher survey.  $N = 89$  to 115. The variation in  $N$  is due to missing data.

\* $p < .05$ . \*\* $p < .0001$ .

measured by the CC. Table 4 reflects the variability in the level of implementation among teachers in our sample. The mean CC rating of 16.12 ( $SD = 5.39$ ) from a possible 32 indicates only partial implementation. The variability of scores among the four criteria shows that components of the curriculum as described in the curriculum guides were not implemented uniformly.

The results of the multiple-regression analysis suggest that levels of teachers' sense of efficacy and task-relevant interactions among teachers significantly predicted the use of the curriculum guides,  $t(82) = 3.1, p < .05$ .

**Table 3. Means, Standard Deviations, and Range of Scores for Instruments Used**

Instrument	$N$	$M$	Actual range of scores	$SD$
Content Checklist (CC)	105	16.41	7-32	5.39
Teacher Efficacy Scale (TES)	118	26.66	12-39	6.12
Staffing Pattern Inventory (SPI)	111	24.74	0-61	15.42
Communication: Teacher with Teacher (CTT)	122	8.75	1-25	6.56
Communication: Teacher with Principal (CTP)	119	2.84	.25-13.5	2.55

NOTE.  $N$  varies because of missing data.

**Table 4. Content Checklist Ratings by Criteria**

Criterion	$N$	$M$	$SD$	Actual range
Scheduling	105	6.7	1.25	4-8
Objectives	105	3.45	2.04	0-8
Activities	105	3.68	1.68	0-8
Philosophy/ methods	105	2.29	1.99	0-8
Implementation				
TOTAL	105	16.12	5.39	4-32

Table 5. Analysis of Variance of Curriculum Implementation

Source of variation	SS	df	MS	F
Teacher interactions (A)	82.81	1	82.81	2.97*
Teaching efficacy (B)	.21	1	.21	.008
A × B	162.12	1	162.12	5.809**
Error	2260.68	81	27.91	
TOTAL	2505.69	84	29.83	

\* $p < .10$  \*\* $p < .05$ 

Further, task-relevant interactions among teachers was the better predictor of curriculum implementation,  $t(84) = 2.4, p < .01$ . An analysis of the data showed no statistically significant difference in the use of changed curriculum between groups of teachers with higher and lower levels of sense of teaching efficacy (see Table 5).

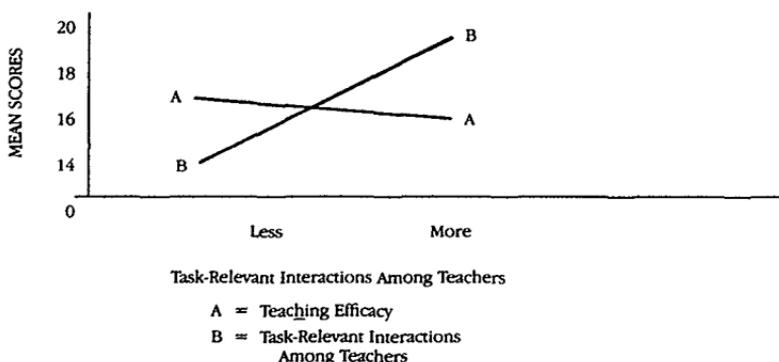
Task-relevant interactions among teachers had no significant effect on curriculum implementation,  $F(3, 81) = 2.97, p < .10$  (see Table 5). Although the examination of cell means shows that teachers who interact more frequently on task-relevant issues with other teachers were higher implementers of curriculum, the difference between the means was not significant (see Table 6). Similarly, the data did not support the prediction that higher levels of interactions between teachers and administrators would influence higher levels of curriculum implementation (see Table 2).

The prediction of a statistical interaction between task-relevant interactions among teachers and sense of teaching efficacy on the level of implementation of changed curriculum was supported. The ANOVA resulted in a statistically significant interaction,  $F(3, 81) = 5.81, p < .05$  (see Figure 1). The subsequent analysis of simple main effects demonstrated that levels of teaching

Table 6. Cell Means of Curriculum Implementation by Factor

		TEACHING EFFICACY		
		Low	High	
TEACHER INTERACTION	Less	$M = 16.63$	$M = 14.18$	$M = 15.7$
	More	$M = 16.0$	$M = 19.11$	$M = 17.6$
		$M = 16.3$	$M = 16.7$	

**Figure 1. Statistical Interaction of Teaching Efficacy and Task-Relevant Interactions Among Teachers**



NOTE.  $N = 85$  for the combined groups, 46 for less task-relevant interaction, 39 for more teacher interaction, 45 for lower teaching efficacy, and 40 for higher teaching efficacy

efficacy alone had little measurable effect on the use of the changed curriculum, but when higher efficacy was coupled with more task relevant interactions among teachers, there was a statistically significant increase in implementation,  $t(39) = 2.52, p < .01$ .

## DISCUSSION

The results indicating that the changed curriculum was implemented only partially in the first year of the program are consistent with Fullan's model of change implementation and the results of previous studies.<sup>27</sup> Researchers and theorists describe educational change as resocialization. Time must be allowed for this process. A time line of 3 to 5 years for implementing an educational change is not unreasonable.<sup>28</sup>

<sup>27</sup>Michael Fullan, *The Meaning of Educational Change* (New York: Teachers College Press, 1982). See also, for example, Paul Berman and Milbrey Wallin McLaughlin, *Federal Programs Supporting Educational Change, Volume II. Factors Affecting Implementation and Continuation*, Report No. R-1589/7 HEW (Santa Monica, CA: Rand Corporation, 1977); David P. Crandall, "The Teacher's Role in School Improvement," *Educational Leadership* 42 (November 1983): 6-9; Gene E. Hall, Shirley Hord, and T. H. Griffin, "Implementation at the School Building Level: The Development and Analysis of Nine Mini-Case Studies" (paper presented at the annual meeting of the American Educational Research Association, San Francisco, April 1980).

<sup>28</sup>See, for example, C. P. Alderfer, "Change Processes in Organizations," *Handbook of Industrial and Organizational Psychology*, ed. M. D. Dunnett (New York: Wiley, 1983): 1591-1622; Michael Fullan and Alan Pomfret, "Research on Curriculum and Instruction Implementation," *Review of Educational Research* 47 (No. 2, 1977): 335-397; Shirley M. Hord, William L. Rutherford, Leslie Huling-Austin, and Gene E. Hall, *Taking Charge of Change* (Alexandria, VA: Association for Supervision and Curriculum Development, 1987).

Investigators on implementation report that components of changed programs are not equally implemented.<sup>29</sup> Gross, Giacquinta, and Bernstein have found that components requiring the greatest teacher initiative showed the lowest levels of implementation.<sup>30</sup> Our results, too, show varying levels of implementation of the new curriculum. The criterion of "philosophy and teaching methods" showed the lowest level of implementation ( $M = 2.29$ ). Philosophy and teaching methods refer to the application of the teaching philosophy described in the curriculum guides. The teaching philosophy includes a hands-on, experiential approach. This criterion contrasts with the previous textbook-centered curriculum and requires the greatest teacher initiative to implement.

The first independent variable, teachers' sense of efficacy, had little effect on the implementation of curricular change. We did not expect this finding because Fullan's conceptualization of the change process designates teachers' sense of efficacy as a factor in successful implementation.<sup>31</sup> Other theorists have argued that higher teacher efficacy—the expectation that greater efforts will yield improved outcomes—is related to teachers' persistence in implementing educational change.<sup>32</sup> Findings of the school-effectiveness research designate efficacy as one of the five school conditions related to improved student learning.<sup>33</sup> Our results suggest that teaching efficacy alone did not account for teacher variability in implementing curricular change.

Theorists have identified at least two factors in the teacher-efficacy construct.<sup>34</sup> The first factor, under various names, refers to an individual's belief that one can successfully execute the behavior required to influence outcomes (teaching efficacy or performance efficacy). The second factor is a specific

---

<sup>29</sup>For example, J. Ashley and D. Butts, "A Study of the Impact of an In-Service Education Program on Teacher Behavior," in *Research and Curriculum Development in Science Education*, ed. D. Butts (Austin: University of Texas, 1971), W. Evans and J. Scheffler, "Degree of Implementation: A First Approximation" (paper presented at the annual meeting of the American Educational Research Association, April 1974), Neal Gross, Joseph Giacquinta, and Marilyn Bernstein, *Implementing Organizational Innovations. A Sociological Analysis of Planned Educational Change* (New York: Basic Books, 1971).

<sup>30</sup>Neal Gross, Joseph Giacquinta, and Marilyn Bernstein, *Implementing Organizational Innovations: A Sociological Analysis of Planned Educational Change* (New York: Basic Books, 1971).

<sup>31</sup>Michael Fullan, *The Meaning of Educational Change* (New York: Teachers College Press, 1982).

<sup>32</sup>Albert Bandura, "Self-Efficacy Toward a Unifying Theory of Behavioral Change," *Psychological Review* 84 (No. 2, 1977): 191–215, Cecil Muskel, David McDonald, and Susan Bloom, "Structural and Expectancy Linkages Within Schools and Organizational Effectiveness," *Educational Administration Quarterly* 19 (Winter 1983): 49–82, Victor Vroom, *Work and Motivation* (New York: Wiley, 1964).

<sup>33</sup>Elizabeth Cohen, "Open-Space Schools. The Opportunity to Become Ambitious," *Sociology of Education* 46 (No. 2, 1973): 143–161, Ron Edmonds, "Effective Schools for the Urban Poor," *Educational Leadership* 36 (October 1979): 15–27.

<sup>34</sup>See, for example, Patricia Ashton, Rodman Webb, and Nancy Doda, *A Study of Teachers' Sense of Efficacy*, Final Report, Contract No. 400-70-0075 (Washington, DC: National Institute of Education, 1983), Albert Bandura, "Self-Efficacy Toward a Unifying Theory of Behavioral Change," *Psychological Review* 84 (No. 2, 1977): 191–215.

belief in one's own coping abilities (self-efficacy, personal efficacy, or organizational efficacy). Alternative views of the effect of teaching efficacy on school organizations have been conceptualized by Fuller, Wood, Rapoport, and Dornbusch.<sup>35</sup> They label the outcome-efficacy factor "performance efficacy" (teaching efficacy) and contrast it with "organizational efficacy" or the degree to which social involvement across levels in an organization is linked to sufficient expectancy of obtaining valued outcomes. They view teaching efficacy as situational and contrast the effect of the two factors on organizational change by explaining that individuals seek niches that provide the most opportunities for feeling efficacious. Individuals choose to maximize either organizational or performance (teaching) efficacy by considering the relative value of outcomes available in each domain.

This explanation of the effect of teachers' efficacy is consistent with our findings. Levels of teaching efficacy may not always be compatible with organizational efficacy—interactions across structural levels to achieve organizational goals. Specifically, teachers who exhibit higher levels of teaching efficacy with students may be more resistant to implementing new curriculum than other teachers. Conversely, teachers reporting lower teaching efficacy with students may try to make the most of the rewards of higher levels of organizational efficacy by working with other teachers and support personnel to implement the new curriculum. Additional factors such as the classroom and school climates, the change being implemented, and the teachers' personalities should be considered to assess the effect of teachers' sense of efficacy on a particular curricular change. This investigation measured how teaching efficacy affected change. Organizational efficacy may account for more teacher variability.

Even though teachers reporting more frequent task-relevant interactions with other teachers obtained higher levels of implementation ( $M = 17.6$ ) than other teachers ( $M = 15.7$ ), the effect of this variable on curricular change was not statistically significant. Fullan described the process of change as resocialization and pressure through interaction with peers.<sup>36</sup> However, organizational structures that enhance teachers' interaction and provisions for developing collegial support are frequently overlooked in planning for educational change. Further, teachers traditionally work somewhat autonomously in an environment of "egg-crate" classrooms and have little contact with administrators or peers.<sup>37</sup> Therefore, providing for resocialization as a part of the educational change process may be particularly critical.

---

<sup>35</sup>Bruce Fuller, Ken Wood, Tamar Rapoport, and Sanford Dornbusch, "The Organizational Context of Individual Efficacy," *Review of Educational Research* 52 (Spring 1982) 7-30.

<sup>36</sup>Michael Fullan, "Change Processes and Strategies at the Local Level," *The Elementary School Journal* 85 (No. 3, 1985): 391-421.

<sup>37</sup>John I. Goodlad, *A Place Called School* (New York: McGraw-Hill, 1984), Dan C. Lortie, *Schoolteacher. A Sociological Study* (Chicago: University of Chicago Press, 1975), Robert B. Kotkamp, Eugene F. Provenzo, and Marilyn M. Cohn, "Stability and Change in a Profession. Two Decades of Teacher Attitudes," *Phi Delta Kappan* 67 (April 1986): 559-567.

Our data indicate that teachers communicated with other teachers infrequently ( $M = 8.75, SD = 6.56$ ). The variability in teacher-teacher interactions suggests that opportunities for collegial relationships are available. A percentage of teachers, however, remain relatively isolated in their schools and classrooms. The failure to provide formal structured opportunities for teachers' collegial development may limit growth in this important change related variable to teachers who volunteer or initiate interactions. Previous researchers using the CTT and CTP have also reported low levels of task-relevant interactions among educators and support the belief that teachers interact more frequently with their peers than with administrators on instructional matters.<sup>38</sup>

The finding that teacher-administrator task-relevant communication did not contribute to curriculum implementation was unexpected. The role of the principal, theoretically, includes both instructional leadership and administrative responsibilities.<sup>39</sup> However, findings of previous research indicate that most principals spend most of their day on administrative tasks, not on instructional leadership.<sup>40</sup> Howell has found that principals spend about 14 percent of their time on curriculum-related activities, scheduling students, coordinating course placement, and supervising and observing teachers.<sup>41</sup> However, teachers' reports of the nature and frequency of teacher-administrator task-relevant interactions may be inadequate indicators of the principal's effect on curricular change. Crandall and his associates have found that successful implementation results from concrete, continuous help from credible people and clear direction from administrators.<sup>42</sup> Administrative support for curriculum implementation—for example, by providing materials, resources, and support personnel and monitoring their use—was not mea-

<sup>38</sup>Edwin M. Bridges and Maureen T. Hallinan, "Subunit Size, Work System Interdependence, and Employee Absenteeism," *Educational Administration Quarterly* 14 (Spring 1978): 24-42; Ruth M. Frere and Karen R. Okeafor, "Structural Linkages in Schools, Confidence in Teachers, and Principal Leadership Style: Perceptions of Teachers" (paper presented at the meeting of the Mid-South Educational Research Association, Mobile, AL, May 1987); Cecil Miskel, David McDonald, and Susan Bloom, "Structural and Expectancy Linkages Within Schools and Organizational Effectiveness," *Educational Administration Quarterly* 19 (Winter 1983): 49-82.

<sup>39</sup>Ronald F. Campbell, Edwin M. Bridges, and Raphael O. Nystrand, *Introduction to Educational Administration* (Boston: Allyn & Bacon, 1978).

<sup>40</sup>See, for example, A. Blumberg and W. Greenfield, *The Effective Principal: Perspectives in School Leadership* (Boston: Allyn & Bacon, 1980); John I. Goodlad, *A Place Called School* (New York: McGraw-Hill, 1984); Kenneth A. Leithwood and D. J. Montgomery, "The Role of the Elementary School Principal in Program Improvement: A Review," *Review of Educational Research* 52 (No. 3, 1983): 309-339; William J. Martin and Donald J. Willower, "The Managerial Behavior of High School Principals," *Educational Administration Quarterly* 17 (Winter 1981): 69-90; Harry F. Wolcott, *The Man in the Principal's Office. An Ethnography* (New York: Holt, Rinehart & Winston, 1973).

<sup>41</sup>B. Howell, "Profile of the Principalship," *Educational Leadership* 40 (1981): 333-366.

<sup>42</sup>David P. Crandall and Associates, *People, Policies, and Practices Examining the Chain of School Improvement*, Volumes 1-X (Andover, MA: Network, 1982).

sured. These considerations may account for additional variability in curriculum implementation.

A statistically significant interaction was found between teachers' efficacy and interactions among teachers (joint planning and task-relevant talk). The results suggest that teaching efficacy, by itself, has little effect on the use of the changed curriculum. However, coupling higher levels of teaching efficacy and more frequent task-relevant interactions among teachers can result in higher implementation levels. This finding supports Fullan's proposition that selected teacher variables, including task-relevant interactions among teachers and teacher efficacy, influence the implementation of an educational change.<sup>43</sup>

The typically flat organizational structure of schools provides few opportunities for teachers' upward mobility and few financial incentives to implement change. Teachers' rewards for the extra effort required to implement a change include the personal satisfaction from (1) achieving valued outcomes with students (teaching efficacy), (2) working with colleagues to influence the achievement of organizational goals (task-relevant interaction), and (3) receiving recognition from administrators and colleagues (efficacy, collegiality, and interaction).

Little has found, in her extensive qualitative study of effective schools, that teachers' interactions contribute to teachers' competence, confidence, influence, and satisfaction.<sup>44</sup> She maintains that professional interactions among educators foster teaching norms that support continuous improvement in instruction and continued receptivity to school improvement. Ashton, Webb, and Doda have found that conditions in schools, such as isolation and lack of social recognition, contribute to teachers' low sense of efficacy.<sup>45</sup> Moreover, they have found that collegial decision making and teacher teaming may increase teachers' sense of efficacy.<sup>46</sup> These conclusions are supported by our finding that higher teaching efficacy, coupled with more frequent task-relevant interactions among teachers, resulted in higher levels of implementation of curricular change.

Teachers exhibiting higher efficacy and lower task-relevant interactions showed significantly lower implementation levels. This finding affirms the importance of teachers' interactions or resocialization as a component of the change process and identifies a group of high-efficacy teachers who perhaps are using more effective ways of teaching the new curriculum.

Our study was limited to a single change-implementation process in one school system (as well as by nonrespondents). Also, the operational definitions

---

<sup>43</sup>Michael Fullan, *The Meaning of Educational Change* (New York: Teachers College Press, 1982)

<sup>44</sup>Judith Little, "Norms of Collegiality and Experimentation: Workplace Conditions of School Success," *American Educational Research Journal* 19 (Fall 1982) 325-340

<sup>45</sup>Patricia T. Ashton, Rodman B. Webb, and Nancy Doda, *A Study of Teachers' Sense of Efficacy*, Final Report, Contract No. 400-79-0075 (Washington, DC: National Institute of Education, 1983)

<sup>46</sup>Ibid

of implementation and task-relevant interactions among educators may have appealed especially to teachers seeking recognition from others by verbalizing their support of the new curriculum and documenting its use by writing more elaborate lesson plans. Teachers needing less collegial recognition may interact with colleagues less frequently, write briefer lesson plans, or both. Moreover, lesson plans are an imperfect indication of teacher behavior. Although lesson plans provide an indication of what teachers intend to teach, plans do not always describe what actually was taught.

MARYBETH G. POOLE is Coordinator of Testing and Curriculum Assessment, Camp Lejeune Dependents' Schools, Building 855, MCB, Camp Lejeune, NC 28542

KAREN R. OKEAFOR is Assistant Professor, Department of Educational Leadership and Foundations, University of New Orleans, New Orleans, LA 70148

Connelly, F. Michael, and D. Jean Clandinin. *Teachers as Curriculum Planners: Narratives of Experience*. New York: Teachers College Press, 1988. 231 pp. \$26.95/\$15.95.

In case narratives and vivid commentary, this book illustrates teachers' use of contextual narratives, document analysis, metaphors, rules, principles, beliefs, images, and philosophies for understanding their own experience of curriculum planning and instruction.

Loucks-Horsley, Susan, Catherine K. Harding, Margaret A. Arbuckle, Lynn B. Murray, Cynthia Dubea, and Martha K. Williams. *Continuing to Learn: A Guidebook for Teacher Development*. Andover, MA: Regional Laboratory for Educational Improvement of the Northeast and Islands; Oxford, OH: National Staff Development Council, 1987. 175 pp. \$10.00.

This sourcebook summarizes 12 approaches to teachers' professional development—including innovative practices, clinical supervision, mentors, teacher centers, and individually guided development—giving underlying assumptions, key features, what it looks like in practice, conditions necessary for success, benefits, commentary, and references for each approach. Chapters are included on developing and evaluating programs and on attributes of effective programs.

Goodson, Ivor F. *The Making of Curriculum: Collected Essays*. Philadelphia: Falmer Press, 1988. 217 pp. \$38.00/\$19.00.

Goodson describes how selected curriculum subjects in British comprehensive schools arose and evolved and places these examples of curriculum history within an intelligible framework of historical interpretation and an unfinished agenda of inquiry. Several methodological essays extend the book's value beyond the British setting.

Copyright © 1989 by the Association for Supervision and Curriculum Development. All rights reserved.