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ABSTRACT

This study evaluated differences between persisters and nonpersisters in a 3-year teacher development program. Participants were K-12 teachers from a large school district with both urban and suburban schools. They were part of a grant to help teachers implement state content standards through cognitive coaching, nonverbal classroom management, and monthly dialogue groups. Teachers participated in either treatment or control groups, completing evaluations just before the training began in November 1994 and 10 months after the initial training in September 1995. The assessment measured personal empowerment, teacher efficacy, learner-centered beliefs, conceptual level as psychosocial variables, and school culture. It also examined satisfaction with teaching, satisfaction with current teaching position, and enthusiasm for teaching. Of the 230 treatment group participants, 61.7 percent persisted to project completion. Of the 195 comparison group teachers, 83.1 percent persisted to the final data collection. Few effects were found for personological, background, or school climate variables, with gender and school socioeconomic status being the exceptions. The primary source of differences between persisters and dropouts was in response to the treatment. Participants engaging more actively in the project were more likely to persist. Persistence was also a function of support of the school principal. (Contains 30 references and 10 tables.)

# Persisters versus Nonpersisters: Characteristics Of Teachers Who Stay in a Professional Development Program

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Abstract

Differences between persisters and nonpersisters in a three-year teacher development program were evaluated. Of the 230 treatment group participants, 61.7% persisted to project completion; 83.1% of the 195 comparison group participants remained at final data collection. Few effects were found for personological, background, or school climate variables, with gender and school socioeconomic status being the exceptions. The primary source of differences between persisters and dropouts was in response to the treatment. Participants engaging more actively in the project were more likely to persist. Persistence was also a function of support of the school principal.

Recruiting school faculty and students to participate in the training and evaluation components of funded projects is a challenging process. While district staff or school administrators may potentially wish to participate in the training that is provided by a project, school administrators may feel that their staff and students have been "overstudied" and be reluctant to impose further burdens (Ellickson, 1996). Parents may be reluctant to allow student participation, particularly if sensitive information is requested. If the obstacles to recruitment into a project have been overcome, finding a comparable comparison group that does not receive the training may also present a difficult problem. Problems with recruitment and retention of participants are then exacerbated when the project extends over more than one school year. Attrition of participants becomes a central problem in such longitudinal work.

Attrition from projects has four negative effects on outcomes. First, it is a waste of resources to provide training to people who fail to persist in the project long enough to benefit. If only limited numbers of people can be accommodated, it would be preferable to provide training to those most likely to complete the project. If resources were abundant, this would not be the case but typically funded projects can only accommodate limited numbers of participants. Second, reduced numbers of cases diminishes the power and sensitivity of statistical tests. Third, results of the project evaluation are called into question when attrition occurs. The internal validity of an experimental design is suspect when the groups compared post-intervention are no longer equivalent. Numerous projects in social program evaluation use quasi-experimental designs. Random assignment may be unethical or may not be permitted by a school district. Thus, the group receiving the

intervention may be matched to a comparison group based on school demographics rather than teachers, for example, being randomly assigned to treatment or comparison conditions. Quasi-experimental designs, such as a non-equivalent control group design, are subject to differential selection as the dominant threat to internal validity. With careful attention paid to creating groups that are initially comparable, statements about causation may still be valid. But when attrition occurs, it may occur at different rates in the treatment and comparison groups. Also, people dropping out of a no-treatment comparison group may differ qualitatively from those dropping out of the treatment group. Attrition, then, may destroy the evaluator's ability to draw clear, strong conclusions about the effects of the intervention. Fourth, generalizability of results may become more and more limited as attrition rates increase.

Generalizability of the effectiveness of teacher development projects may be limited at the outset as participants are generally volunteers. Volunteers for *research* studies have characteristics that differentiate them from nonvolunteers. Among those characteristics are higher educational levels, higher intelligence, higher social status, a greater need for social approval, and higher levels of sociability, less conventional behavior, female rather than male, and less authoritarian attitudes (Rosenthal & Rosnow, 1975). Survey research studies have also found salience of the topic to the individual to have a strong effect on participation (Boser & Clark, 1996). But the characteristics of volunteers for teacher development projects may differ from those of volunteers for research studies. A very few studies peripherally address teacher persistence in continuing education, and none of these studies have attempted to characterize persisters in comparison to nonpersisters.

If the characteristics of those individuals likely to persist in a training program and those likely to drop out can be identified, we can either select participants based on those characteristics (if limited training slots are available) or devote special attention to motivating those less likely to persist in the program. The purpose of this study was to explore differences between teachers who remained in a three-year professional development program and those who dropped out.

## Background

Attrition is a problem in many forms of quantitative evaluation and across diverse disciplines. While the current study is concerned with attrition of teacher-participants in a teacher-development program, the literature summarized below crosses disciplinary boundaries.

While attrition has been studied widely (e.g., Bosma, 1988; Hansen, Collins, Malotte, Johnson, & Fielding, 1985; St. Pierre & Proper, 1978), factors associated with attrition have received less attention. Project final reports document the numbers completing and dropping out of treatment and comparison groups, and a few studies also provide information about characteristics distinguishing persisters and nonpersisters. Hansen, Tobler, and Graham (1990) conducted a meta-analysis of 85 longitudinally followed cohorts of school-aged students participating in substance abuse prevention programs. The mean percent remaining in programs at 12 months was 73.4%, 71.8% at 24 months, and 67.5% at 36 months. Lauby, Kotranski, and Feighan (1996) differentiated attrition from the intervention and attrition from the research data collection in evaluation of an HIV prevention program. With respect to the intervention, 87% of 1,115 people who completed the baseline interview returned for the second session. People who lived

alone were less likely to return than those living with at least one other person. Those reporting that they engaged in riskier behaviors were also more likely to return. Of those completing the intervention, 69% completed a 6-month follow-up interview. Women, African-Americans, older persons (>40 years), those living with a partner, and those on public assistance were more likely to complete the data collection. Siegal, Falck, Carlson, and Wang (1995) studied injection drug users. They received complete data from 75% of their sample of 693. In contrast to Lauby et al., they found no effects of age, gender, ethnicity, educational level, source of income, or residence on persistence.

An evaluation involving 16,754 adult education clients (National Evaluation of Adult Education Programs, 1994) found that of those enrolling for a program, 85% actually began and 11% continued into a second year. Predictors of persistence were support service availability, instruction offered during the day rather than in the evening or on weekends, and more individualized learning environments. Kluger, Fein, Maluccio, and Taylor (1987) recruited volunteers as interviewers in an evaluation of long-term foster care. Of the volunteers trained, 14% failed to do any interviews and only 21% completed the tasks assigned. Factors affecting success for volunteer interviewers were the volunteers' motivation level, interest in the topic, strong staff monitoring, and positive relationships with project staff.

Sarkin, Tally, Cronan, Matt, and Lyons (1997) differentiated attrition by program-centered factors, person-centered factors, and interactions between the two. Program-centered factors include time requirements and scheduling, location, and perceived benefits of treatment. Control group subjects have been found to drop out at higher rates than treatment participants (Szapocznik, Kurtines, Santisteban, & Rio, 1990). Person-

centered factors include job-related conflicts, moving, socioeconomic status, age, education, and psychosocial factors (Cross, 1981; Sainty, 1971). Psychosocial factors included self-esteem and alientation (Darkenwald & Hayes, 1988; Popp, 1991). Sarkin et al. found variables related to attrition to be a mixture of program-related and person-related factors that interacted. Factors identified as increasing attrition were lower participant perception of success in performing the skills taught, being African-American, and age by program interaction.

Some suggestions about how to reduce attrition include the use of tracking techniques and incentives to continue participation before participants make the decision to withdraw (Capaldi & Patterson, 1987; Dennis, 1994; Twitchell, Hertzog, Klein, & Schuckit, 1992; Young & Dombrowski, 1989). Early identification of participants likely to withdraw can provide information useful in analysis of program effectiveness as well. Designing interesting, credible, timely, and convenient treatments would, of course, promote attendance. Bean (1989) reported lack of transportation to the program site as a reason for attrition. Conducting interventions and assessments at local and accessible sites would increase retention. Increased attention to incentives for comparison-group participants may enhance persistence in those groups. Tomlinson-Keasey (1993) suggested mailing newsletters and cards to help maintain interest. Providing prospective participants with more thorough information prior to commitment to the study may reduce attrition between agreement to participate and actual participation (Howard, Krause, & Orlilnsky, 1986). Prior to active involvement in a study, prospective participants may not have a clear idea of what actually will be expected of them, what the intervention really is, or of the time commitment or scheduling involved.

According to Hansen et al. (1990), the persistence rates over three-year studies of school-aged students would be expected to vary around a mean of 67.5%. Persistence rates of teachers in a stable community might be expected to be higher. Factors associated with persistence center around project appeal with inconclusive evidence regarding demographic factors and little attention to psychosocial variables. The present study contributes to the literature on attrition by assessing attrition with a sample of teachers in a stable environment and by investigation of psychosocial variables as well as professional background and demographic variables.

## Method

### Participants

Participants in this project were K-12 teachers from the largest school district in a western state's metropolitan area. The district included both urban and suburban areas, and comprised schools from low to high socioeconomic status. Participants were part of a three-year grant funded by the United States Department of Education Fund for Innovation in Education, Office of Educational Research and Improvement. The purpose of the grant was to assist teachers in implementing State Content Standards through Cognitive Coaching, Nonverbal Classroom Management, and monthly Dialogue Groups. The Dialogue Groups provided teachers with the opportunity to share ideas about implementing standards and to coach each other on either past or upcoming lessons. Two hundred thirty teachers initially participated in the experimental group, and 195 teachers participated in the control group. These groups were matched on the basis of socioeconomic level of the schools.

Participants were in their mid-40's, on average, had taught approximately fifteen years, had been in their present positions approximately 6 1/2 years, had been at their present schools about 6 1/2 years, and had been in the school district for over 12 years. They had substitute taught approximately one year, received their most recent degrees in the mid-1980s, and had taken 4 semester hours in the last year.

The majority was female, Caucasian, and taught at the elementary level. Most teachers had pursued education beyond the Bachelor's degree; however, the majority was not currently enrolled in a graduate level program. Most participants planned to teach the following year and would choose to go into teaching again, if given the choice. Most teachers did not teach multi-age classes.

Teachers were categorized into groups depending upon how long they remained with the project. Data collection was ongoing for the treatment group, and these participants could be categorized as dropped out during year 1, dropped out during year 2, dropped out during year 3, or stayed through the project's end (year 3-completed). There were fewer data collection points for the comparison group and those teachers were categorized only as dropouts or continue through the project's end (year 2, completed).

Instruments

Personal empowerment, teacher efficacy, learner-centered beliefs, conceptual level as psychosocial variables, and school culture, as a reflection of the teacher's environment, were measured in this study along with participants' background information. Also assessed were teacher satisfaction with teaching, satisfaction with their current positions, and their enthusiasm for teaching (single item measures). The measures

administered were the *Teacher Efficacy Scale* (Gibson & Dembo, 1984), the *School Culture Survey* (Saphier & King, 1985), the *Paragraph Completion Method* (Hunt, Butler, Noy, & Rosser, 1978), the *Learner-Centered Battery* (McCombs & Lauer, 1997), and the *Vincenz Empowerment Scale* (Vincenz, 1990).

The *Teacher Efficacy Scale* (Gibson & Dembo, 1984) is a thirty-item self-report scale employing a 1 to 6 response scale. The subscales of teaching efficacy ($\alpha = .82$) and personal teaching efficacy ($\alpha = .81$) were used. Questions related to teaching efficacy ask whether the respondent believes that teachers in general can make a difference with students. Personal teaching efficacy (I can make a difference, or self-efficacy) is another subscale in the *Teacher Efficacy Scale.*

The *School Culture Survey* (Saphier & King, 1985) is a twenty-nine item self-report scale employing a 1 to 5 response scale. Teacher Professionalism and Goal Setting ($\alpha = .91$), Administrator Professional Treatment of Teachers ($\alpha = .86$), and Teacher Collaboration ($\alpha = .81$) are the three subscales comprising the measure (Edwards, Green, & Lyons, 1996).

The *Paragraph Completion Method* (Hunt et al., 1978) was used because it is highly associated with beneficial outcomes for students. This is a measure of teacher conceptual level. Teachers with low scores on this instrument tend to think in concrete, right or wrong, black or white ways, while teachers functioning at higher levels tend to think more in shades of gray and be more flexible in their thinking. Teachers were asked to write a minimum of three sentences in response to each of five questions. Questions were, "What I think about rules . . . " (R subscale), "When I am criticized" (C subscale), "When someone does not agree with me . . . " (D subscale), "When I am not sure . . . "

(NS subscale), and "When I am told what to do . . . " (T subscale). A total conceptual level score was also computed for each participant based on responses to the individual subscales. This instrument, which was hand-scored, had an internal consistency of .55, which was considered minimal for research purposes.

The *Learner-Centered Battery* (McCombs & Lauer, 1997) was used in order to assess the extent to which a teacher was "learner-centered." Subscales had the following internal consistencies: 1) Learner-Centered Beliefs About Teaching, .79 (14 items); 2) Non-Learner Centered Beliefs About Learners, .75 (9 items); 3) Non-Learner Centered Beliefs About Learning and Teaching, .72 (12 items); 4) Creates Positive Interpersonal Relationships/Climate, .85 (7 items); 5) Honors Student Voice, Provides Challenge, and Encourages Perspective Taking, .78 (7 items); 6) Encourages Higher Order Thinking and Self-Regulation, .78 (6 items); 7) Adapts to Individual Developmental Differences, .50 (5 items); 8) Self-Efficacy, .70 (6 items); 9) Negative Beliefs About Adolescence, .63 (4 items); 10) Positive Beliefs About Adolescence, .44 (6 items); 11) Reflective Self-Awareness, .86 (15 items); 12) Medium Control, .62 (5 items); 13) High Control, .57 (5 items); 14) Medium Autonomy, .42 (5 items); and 15) High Autonomy, .38 (5 items). Sample questions from the battery are as follows:"Too many students expect to be coddled in school;" "I demonstrate to each student that I appreciate him/her as an individual;" and "I allow students to express their own unique thoughts and beliefs."

The *Vincenz Empowerment Scale* (Vincenz, 1990) measures six related constructs of personal empowerment and was developed for use in a variety of settings. It was designed in accordance with the literature on personal empowerment, and focuses on mastery of one's personal life (self-empowerment) and effective involvement with one's

environment. The *Vincenz Empowerment Scale* is a seventy-four item self-report scale comprising six subscales. They are Potency, or efficacy (13 items); Independence, or autonomy (14 items); Relatedness, or interdependence (14 items); Motivation (11 items); Values (14 items); and Joy of Life (8 items). Internal consistency analysis of the *Vincenz Empowerment Scale* in this study indicated the following reliabilities for the subscales: Potency (Efficacy), .77; Independence (Autonomy), .75; Relatedness (Interdependence), .76; Motivation, .71; Values, .65; Joy of Life, .76; and Total Empowerment, .92.

A separate information sheet asked for teacher gender, age, ethnicity, subject and level taught, as well as other relevant demographic information.

Procedure

All instruments were administered to experimental group participants in the training room just before the training began in November, 1994 and ten months after the initial training in September, 1995. Instruments were administered to control participants at their schools in a group setting shortly after the instruments were administered to experimental participants in the first two years. Logs were kept by the researcher of the number of Cognitive Coaching cycles done, number of Dialogue Groups attended, and other relevant variables for experimental group participants. Control group participants were compensated each time they filled out the instruments because they participated after school hours. Experimental group participants were compensated the last time they filled out the instruments because they filled them out after school hours. The first two administrations for the experimental group were during school hours. Participants took approximately an hour to complete the instruments the first time they were administered.

During the second administration, the *Paragraph Completion Method* (Hunt et al., 1978) and the *Vincenz Empowerment Scale* (Vincenz, 1990) were not given.

Analyses of differences between persisters and nonpersisters were conducted using analyses of variance and t-tests. Analyses of variance were used to assess interactive effects of status (persister, nonpersister) by group (treatment, comparison) while t-tests were used to assess simple effects of status for groups separately. Independence of observation was assumed with normality and homogeneity of variance assessed for each test. Separate variance tests were used if the assumption of homogeneity of variance was violated.

## Results

In the treatment group, 230 participants began the program in September, 1994. Of that 230, 57 dropped out during the first year, another 19 during the second project year, and 12 during the third year for retention rates of 75.2% at year one, 67% at year two, and 61.7% at year three. In the comparison group, 195 participants began the program in September, 1994. Of that, 33 dropped out before the next data collection during the second project year for a retention rate of 83.1%.

Table 1 lists the variables assessed in this study and indicates significant ($p < .05$) effects of status separately for the treatment and comparison groups. Tables 2 through 8 provide the variable means and standard deviations, along with t-test values, for the treatment group by project year and for the comparison group. Tables 9 and 10 list frequencies of cases in variable categories in the $X^2$ tests of association.

Table 2 provides data on experimental participants who began the project and dropped out in Year 2. Those who persisted were more satisfied with their positions,

tended to use a medium autonomy approach with students, attended more Dialogue Groups early in the project, internalized and began practicing coaching skills more frequently, and were more satisfied with Nonverbal Classroom Management as well as with teaching as a career.

Table 3 describes experimental participants who began the project and continued until close to the end; however, they did not complete the project. Those who persisted had higher scores on the NS subscale of the Paragraph Completion Method, "When I am not sure...." This indicates that they were better able to tolerate ambiguity, not being sure about things, than those who dropped out sooner. They participated more in coaching cycles, attended more Dialogue Groups, used coaching skills more frequently, were more satisfied with Nonverbal Classroom Management, felt that the project influenced their teaching, and had a higher reported level of use of Standards-Based Education.

Table 4 shows differences between participants who began the project but dropped out in the first year and those who completed the project. Those who persisted to the end had earned their degrees earlier than those who dropped out. In addition, the persisters scored higher on the Medium Autonomy subscale, were more satisfied with teaching as a career, had more positive attitudes toward Standards-Based Education, attended more Dialogue Groups early in the project and perceived them to be helpful, were more satisfied with the project early on, and were in schools in which more teachers were participating in the project. They also internalized and used coaching skills more frequently.

Table 5 shows differences between experimental participants who dropped out in Year 2 and those who almost completed the project but dropped out just before it ended. Those who persisted scored higher on the NS subscale of the Paragraph Completion Method, "When I am not sure..." This indicates that the persisters were more tolerant of ambiguity and were more able to be "not sure." In addition, the persisters completed more coaching cycles early in the project.

Table 6 shows differences between teachers in the experimental group who dropped out in Year 2 and those who completed the project. Those who persisted had more positive attitudes toward Standards-Based Education, reported higher levels of skills as classroom managers, coached parents more frequently, had more positive attitudes toward adolescents, and were more reflectively self-aware. In addition, they reported that the Dialogue Groups were helpful early in the project, were in schools in which higher percentages of teachers were in the project, had more positive attitudes toward Standards-Based Education, and grew more on the Paragraph Completion Method subscale, "T," "When people tell me what to do...." They also scored higher on adapting to Individual Developmental Differences on the Teacher Survey.

Table 7 compares participants who dropped out of the project just prior to it ending and those who completed the project. Those who persisted to the end had been at their schools for a longer period of time, had stronger learner-centered beliefs about students, created more positive relationships with students, and honored student voice.

Table 8 shows the only two differences in the control group between teachers who dropped out of the project after a year and those who completed the project. Those who

persisted were more satisfied with their positions and had completed fewer semester hours in the last year.

Table 9 displays the significant associations between persister status and categorical variables for the experimental group. Associations were found between status and gender, school socioeconomic status, and articulation area. Men dropped out earlier and at higher rates than women, teachers from lower SES schools were more likely to leave, and teachers in articulation areas away from the project's home area were more likely to leave.

Table 10 displays the significant associations between persister status and categorical variables for the comparison group. The only associations found were between gender and level of school. Males, again, were more likely to drop out as were teachers from middle schools.

## Discussion

Retention rates in this study were comparable to the rates found by Hansen et al. (1990). Comparison group retention exceeded that of the treatment group, in contrast to results found by Szapocznik et al. (1990). This may be due to compensation of participants in the comparison group. Gender exerted a significant effect on persistence for both the treatment and comparison groups. Women were more likely to persist than men, consistent with Lauby et al.'s (1996) results.

Teachers from the district's lowest SES high school articulation area were solicited for participation in the treatment to expand the potential range from the project's home area that was mid-level SES. But, support from the principals was weakest in this low SES area. After the first project year, some principals actually suggested that

teachers drop out to relieve some of time stress. Teachers in this articulation area did not see benefits from the treatment soon enough to maintain their interest. In addition, another project was initiated in this area during the second year of the grant that generated divisiveness within the area. Further, one principal "coerced" her teachers to attend, and they quickly left the project. At three higher SES schools, the principals actually attended the training with their teachers and coached the teachers. Those teachers stayed in the program and became leaders in the project. In some other high SES schools, the principals had already attended the training and were strongly supportive of their teachers doing so.

The highest retention rate related to location was found for the project's home area—the place the grant originated. The principals were supportive, and the project staff were known to the teachers.

Anecdotal records were kept regarding some individuals' reasons for dropping out of the project. They included doctoral/master's work (3), move out of state (1), leaving the profession (1), physical injury (2), promotion to administration (1), dissatisfaction with the program leadership (3), and lack of interest (unknown). It was crucial to get people involved immediately. Those who got involved right away with Dialogue Groups tended to stay involved. The exceptions to this were those with a poor teacher-leader for the Dialogue Group. Some group leaders were inexperienced or otherwise unsuited to be leaders, but removing them from that position would have been uncomfortable for project staff and also would have strained relationships with group members and the school principals.

With increasing demands on staff development dollars, it would be helpful to have indicators to use to project which teachers will persist in the staff development efforts, and which teachers will drop out. Early identification of teachers who are more likely to continue can provide valuable information in order to intervene for the purpose of impacting the greatest number of teachers, with the ultimate outcome being to affect the quality of education for today's students. Results of this study suggest that principal support and active participants engagement are more crucial to retention than personal background or characteristics. Early lack of participation may be remediated by giving those individuals special attention. Alternatively, building in a non-negotiable accountability element might be used to drop some minimal participants from the project to give their slot to another teacher. Providing potential participants with very clear information about the nature of the treatment, perhaps with an opportunity for a brief experience with it, might reduce enrollment in the project but encourage subsequent retention.

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Table 1. Comparison of Persisters and Drop-Outs at the End of Years One, Two and Three – Treatment Group and Control Group – Variables Tested [a]

| | Experimental Group | | | | | | Control |
|---|---|---|---|---|---|---|---|
| VARIABLE | 1v2 | 1v3 | 1v3C | 2v3 | 2v3C | 3v3C | 2v3C |
| Teacher Efficacy Scale<br>Personal Teaching Efficacy | | | | | | | |
| Teaching Efficacy | | | | | | | |
| School Culture Scale<br>Professionalism and Goal Setting | | | | | | | |
| Administrator Professional Treatment of Teachers | | | | | | | |
| Teacher Collaboration | | | | | | | |
| Paragraph Completion Method<br>R—rules | | | | | | | |
| C—criticize | | | | | | | |
| D—disagree | | | | | | | |
| NS—not sure | | .03 | | .004 | | | .004 |
| T—told | | | | | .02 | | |
| X3—total | | | | | | | |
| Learner-Centered Battery<br>Beliefs about Teaching | | | | | | .004 | |
| Non-Learner-Centered Beliefs About Learners | | | | | | | |
| Non-Learner-Centered Beliefs About Teaching | | | | | | | |
| Creates Positive Interpersonal Relationships | | | | | | .04 | |
| Honors Student Voice | | | | | | | |
| Encourages Higher Order Thinking | | | | | | | |
| Adapts to Individual | | | | | .005 | | |
| Self-Efficacy | | | | | | | |
| Negative Beliefs about Adolescence | | | | | | | |
| Positive Beliefs about Adolescence | | | | | .03 | | |
| Reflective Self-Awareness | | | | | .03 | | |
| Medium Control | | | | | | | |
| High Control | | | | | | | |
| Medium Autonomy | .02 | | .02 | | | | |
| High Autonomy | | | | | | | |
| Vincenz Empowerment Scale<br>Potency | | | | | | | |
| Independence | | | | | | | |
| Relatedness | | | | | | | |
| Motivation | | | | | | | |
| Values | | | | | | | |
| Joy of Life | | | | | | | |
| Total Empowerment | | | | | | | |
| Articulation Area | | | (.001)[b] | | | | |
| Socioeconomic Status of School Area | | | (.001) | | | | |
| Level of School | | | | | | | .014 |
| Satisfaction with Teaching as a Career | .05 | | .03 | | | | |
| Satisfaction with Position | .02 | | | | | | .03 |
| Enthusiasm for Teaching | | | | | | | |
| Teach Again Next Year | | | | | | | |
| Years of Teaching Experience | | | | | | | |
| Years at Present School | | | | | | .005 | |
| Year Most Recent Degree Awarded | | | .04 | | | | |
| Grade Level Taught | | | | | | | |
| Subject Taught | | | | | | | |
| Age | | | | | | | |
| Gender | | | (.003) | | | | .006 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ethnicity | | | | | | | |
| Number of Semester Hours Earned | | | | | | | .04 |
| Degree Earned | | | | | | | |
| Treatment-Related Interest Variables | | | | | | | |
| Attendance Day 1 | | | | | | | |
| Attendance Day 2 | | | | | | | |
| Attendance Day 3 | | | | | | | |
| Attendance Day 4 | | | | | | | |
| Percent Participation of School | | | .001 | | .02 | | |
| # Dialogue Groups Attended | .005 | .05 | .02 | | | | |
| Frequency of Informal Coaching | | | .001 | | | | |
| Frequency of Coaching Students | .02 | | | | | | |
| Frequency of Coaching Self | .002 | .005 | .001 | | | | |
| Frequency of Coaching Parents | | | | .04 | | | |
| # Times Coached Formally | | .03 | .001 | | | | |
| Frequency of Use of Questioning Skills | | .006 | .01 | | | | |
| Perceived Helpfulness—Dialogue Groups | | | .001 | | .03 | | |
| # Cognitive Coaching Cycles Completed | | .001 | | .04 | | | |
| Influence of Program on Teaching | | .004 | | | | | |
| Satisfaction with Nonverbal Classroom Mgmt | .007 | .004 | | | .05 | | |
| Satisfaction with Project | | | .001 | | | | |
| Level of Use of SBE | | .05 | | | | | |
| Attitudes Toward Standards-Based Education | | | .001 | | .04 | | |

Note. p-value listed is the significance of the t-test of differences between groups or $X^2$ test of associations between status and variable.

[a] 1v2: year one compared to year 2; 1v3: year one compared to year 3; 1v3C: year one compared to project completers; 2v3: year two compared to year 3; 2v3C: year two compared to project completers; 3v3C: year three compared to project completers.

[b] p-values listed in parentheses were for tests of association computer across all treatment persistence groups.

Table 2. Means and Standard Deviations of Persisters and Drop-Outs in Experimental Group—Year One to Year 2

| | Drop-Outs | | | Persisters | | | | |
|---|---|---|---|---|---|---|---|---|
| Variable | Mean | SD | N | Mean | SD | n | t | p |
| Satisfaction with Position – 1994 | 4.12 | .84 | 54 | 4.67 | .49 | 18 | -2.61 | .02 |
| Satisfaction with Position 1995-96 | 3.93 | 1.07 | 14 | 4.69 | .60 | 16 | -2.43 | .03 |
| Medium Autonomy Subscale of Teacher Survey - 1995 | 2.55 | .32 | 13 | 2.84 | .24 | 16 | -2.72 | .02 |
| Number of Dialogue Groups Attended 1994-95 | 3.20 | 1.23 | 50 | 4.17 | 1.10 | 18 | -2.94 | .005 |
| Frequency of Coaching Students – 1995 | 3.90 | 2.49 | 20 | 5.86 | 1.79 | 14 | -2.67 | .02 |
| Frequency of Coaching Self – 1995 | 3.95 | 2.46 | 20 | 6.11 | 1.27 | 14 | -3.34 | .002 |
| Satisfaction with Nonverbal Classroom Mgt. – 1997 | 3.69 | .63 | 13 | 4.38 | .62 | 16 | -2.93 | .007 |
| Satisfaction with Teaching as a Career – 1997 | 4.18 | .88 | 20 | 4.69 | .48 | 16 | -2.10 | .05 |

Table 3. Means and Standard Deviations of Persisters and Drop-Outs in Experimental Group—Year One to Year Three (Not Completed the Project)

| | Drop-Outs | | | Persisters | | | | |
|---|---|---|---|---|---|---|---|---|
| Variable | Mean | SD | n | Mean | SD | n | t | p |
| NS subscale of Paragraph Completion Method – "When I am not sure...." | 1.87 | .41 | 55 | 2.29 | .54 | 12 | -2.53 | .03 |
| Number of Times Being Coached Formally – 1995 | 3.50 | 1.51 | 14 | 5.18 | 3.89 | 11 | -2.68 | .03 |
| Number of Dialogue Groups Attended 1994-5 | 3.20 | 1.23 | 50 | 4.00 | 1.13 | 12 | -2.06 | .05 |
| Frequency of Use of Questioning Skills – 1997 | 4.15 | 2.11 | 20 | 5.82 | .98 | 11 | -3.90 | .006 |
| Frequency of Coaching Self – 1997 | 3.95 | 2.46 | 20 | 6.18 | 1.17 | 11 | -3.03 | .005 |
| Satisfaction with Nonverbal Classroom Mgt. – 1997 | 3.69 | .63 | 13 | 4.55 | .69 | 11 | -3.17 | .004 |
| Influence of the Project on Teaching – 1997 | 2.74 | .99 | 19 | 3.73 | 1.01 | 11 | -3.17 | .004 |
| Total Cognitive Coaching Cycles Completed – 1995-96 | 1.36 | 1.75 | 11 | 6.20 | 4.30 | 10 | -4.30 | .001 |
| Level of Use of Standards-Based Education – 1997 | 4.25 | 1.48 | 20 | 5.27 | .79 | 11 | -2.12 | .05 |

Table 4. Means and Standard Deviations of Persisters and Drop-Outs in Experimental Group—Year One to Year Three (Completed the Project)

| | Drop-Outs | | | Persisters | | | | |
|---|---|---|---|---|---|---|---|---|
| Variable | Mean | SD | n | Mean | SD | n | t | p |
| Year Most Recent Degree was Awarded | 1987.64 | 7.19 | 14 | 1982.63 | 8.72 | 133 | 2.08 | .04 |
| Medium Autonomy Subscale of Teacher Survey | 2.55 | .31 | 13 | 2.86 | .43 | 132 | -2.54 | .02 |
| Satisfaction with Teaching as a Career – 1994 | 4.18 | .88 | 20 | 4.55 | .69 | 134 | -2.21 | .03 |
| Attitude Toward Standards-Based Education – 1994 | 3.75 | .72 | 20 | 4.27 | .67 | 133 | -3.25 | .001 |
| Number of Dialogue Groups Attended 1994-95 | 3.20 | 1.23 | 50 | 4.23 | 1.03 | 140 | -2.50 | .02 |
| Perceived Helpfulness of Dialogue Groups – 1995 | 3.71 | .84 | 19 | 4.34 | .63 | 108 | -3.97 | .001 |
| Satisfaction with the Project – 1995 | 3.68 | .80 | 20 | 4.07 | .72 | 103 | -3.80 | .001 |
| Percent Participation of the School | 39.37 | 17.32 | 43 | 50.85 | 25.34 | 121 | -3.28 | .001 |
| Number of Times Coached Someone Formally – 1997 | 2.42 | 2.12 | 20 | 9.27 | 7.84 | 133 | -3.70 | .001 |
| Frequency of Coaching Colleagues Informally – 1997 | 3.00 | 1.69 | 20 | 4.46 | 1.80 | 134 | -3.40 | .001 |
| Frequency of Use of Questioning Skills – 1997 | 4.15 | 2.11 | 20 | 5.86 | 1.17 | 134 | -2.85 | .01 |
| Frequency of Coaching Self – 1997 | 3.95 | 2.46 | 20 | 6.21 | 1.37 | 134 | -4.01 | .001 |

Table 5. Means and Standard Deviations of Persisters and Drop-Outs in Experimental Group - Year Two to Year Three (Not Completed the Project)

| | Drop-Outs | | | Persisters | | | | |
|---|---|---|---|---|---|---|---|---|
| Variable | Mean | SD | n | Mean | SD | n | t | p |
| NS Subscale of Paragraph Completion Method – "When I am not sure...." | 1.73 | .47 | 20 | 2.29 | .54 | 12 | -3.11 | .004 |
| Total # of Coaching Cycles 1995-6 | 3.40 | 2.64 | 15 | 6.20 | 3.26 | 10 | -2.29 | .04 |

Table 6. Means and Standard Deviations of Persisters and Drop-Outs in Experimental Group - Year Two to Year Three (Completed the Project)

| | Drop-Outs | | | Persisters | | | | |
|---|---|---|---|---|---|---|---|---|
| Variable | Mean | SD | n | Mean | SD | n | t | p |
| Attitude Toward Standards-Based Education – 1995-96 | 4.00 | .52 | 16 | 4.32 | .70 | 135 | -2.21 | .04 |
| Level of Skill as a Classroom Manager – 1995 | 3.69 | .79 | 16 | 4.08 | .72 | 135 | -2.04 | .05 |
| Frequency of Coaching Parents - 1995 | 2.94 | 2.41 | 16 | 5.82 | 1.81 | 135 | -2.08 | .04 |
| Attitudes Toward Adolescence – Teacher Survey – 1995 | 2.50 | .55 | 17 | 2.82 | .53 | 133 | -2.31 | .03 |
| Reflective Self-Awareness – Teacher Survey – 1995 | 2.87 | .48 | 16 | 3.14 | .44 | 133 | -2.25 | .03 |
| Reported Helpfulness of the Dialogue Groups – 1995 | 3.92 | .76 | 13 | 4.34 | .63 | 108 | -2.20 | .03 |
| Percent Participation of Other Teachers in | 33.86 | 17.21 | 14 | 50.85 | 25.34 | 121 | 2.44 | .02 |

| | Drop-Outs | | | Persisters | | | | |
|---|---|---|---|---|---|---|---|---|
| the School | | | | | | | | |
| Attitude Toward Standards-Based Education – 1997 | 3.81 | .83 | 16 | 4.27 | .67 | 133 | -2.55 | .02 |
| Growth on the Paragraph Completion Method Subscale, "T," When people tell me what to do...." | -0.09 | .55 | 16 | .26 | .53 | 129 | -2.51 | .02 |
| Adapts to Individual Developmental Differences – Teacher Survey – 1997 | 2.41 | .63 | 14 | 2.85 | .53 | 132 | -2.84 | .005 |

Table 7. Means and Standard Deviations of Persisters and Drop-Outs in Experimental Group - Year Three (Not Completed the Project) to Year Three (Completed the Project)

| | Drop-Outs | | | Persisters | | | | |
|---|---|---|---|---|---|---|---|---|
| Variable | Mean | SD | n | Mean | SD | n | t | p |
| Number of Years at Present School – 1994 | 2.66 | 1.96 | 12 | 4.98 | 6.10 | 138 | -3.03 | .005 |
| Learner-Centered Beliefs About Students – Teacher Survey –1995 | 3.03 | .24 | 11 | 3.34 | .34 | 133 | -2.91 | .004 |
| Creates Positive Relationships with Students – Teacher Survey – 1995 | 3.45 | .39 | 11 | 3.70 | .37 | 133 | -2.07 | .04 |
| Honors Student Voice – Teacher Survey – 1995 | 3.16 | .39 | 11 | 3.51 | .38 | 133 | -2.90 | .004 |

Table 8. Means and Standard Deviations of Persisters and Drop-Outs in Control Group Year Two to Year Three (Completed the Project)

| | Drop-Outs | | | Persisters | | | | |
|---|---|---|---|---|---|---|---|---|
| Variable | Mean | SD | n | Mean | SD | N | t | p |
| Satisfaction with Position in 1995-96 | 3.86 | 1.23 | 14 | 4.42 | .84 | 147 | -2.28 | .03 |
| Number of Semester Hours Earned in the Last Year | 8.07 | 11.92 | 14 | 4.17 | 4.98 | 147 | -2.16 | .04 |

Table 9. Associations between Status and Characteristics of Treatment Group Participants

| Variable | Category | Drop 1 | Drop 2 | Drop 3 | Persist | $X^2$ | d.f. | p |
|---|---|---|---|---|---|---|---|---|
| Gender | Male | 9 (41%) | 5 (23%) | 2 (9%) | 6 (27%) | 13.63 | 3 | .003 |
| | Female | 48 (23%) | 15 (7%) | 10 (5%) | 137 (65%) | | | |
| SES | Low | 28 (41%) | 7 (10%) | 6 (9%) | 27 (40%) | 22.30 | 6 | .001 |
| | Middle | 11 (14%) | 7 (9%) | 2 (3%) | 58 (74%) | | | |
| | High | 18 (21%) | 6 (7%) | 4 (5%) | 56 (67%) | | | |
| Articulation Area | Primary | 11 (14%) | 7 (9%) | 2 (3%) | 58 (74%) | 22.30 | 6 | .001 |
| | Secondary | 28 (41%) | 7 (10%) | 6 (9%) | 27 (40%) | | | |
| | Tertiary | 18 (21%) | 6 (7%) | 4 (5%) | 56 (67%) | | | |

Table 10. Associations between Status and Characteristics of Comparison Group Participants

| Variable | Category | Persisters | Drop-Outs | $X^2$ | d.f. | p |
|---|---|---|---|---|---|---|
| Level of School | Elementary | 138 (85%) | 24 (15%) | 12.47 | 4 | .014 |
| | Middle School | 17 (65%) | 9 (35%) | | | |
| | High School | 7 (100%) | 0 (0%) | | | |
| Gender | Male | 14 (70%) | 6 (30%) | 10.21 | 2 | .006 |
| | Female | 148 (85%) | 27 (15%) | | | |

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