DOCUMENT RESUME

ED 282 326 EA 019 421

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TITLE A Study of the Effects of Supervisors' Intervention on Teachers' Classroom Management Performance.
SPONS AGENCY Social Sciences and Humanities Research Council of Canada, Ottawa (Ontario).
PUB DATE 31 May 87
GRANT 410-85-0339; 410-86-2014
NOTE 41p.; Paper presented at the Annual Meeting of the Canadian Association for Teacher Educatien (Hamilton, Ontario, Canada, May 31-June 3, 1987).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Administrator Role; Classroom Observation Techniques; *Classroom Techniques; Elementary Secondary Education; *Instructional Improvement; Intervention; Principals; Supervisors; *Teacher Effectiveness; Teacher Supervision; Workshops

ABSTRACT

The research on supervision and school effectiveness suggests that principals acting as supervisors of instruction make a difference in teacher performance and pupil learning. This study investigated whether effective clinical supervision requires supervisors who practice certain strategies and procedures as they dialogue with supervisees, or whether the mere acquisition by supervisors and/or supervisees of research-verified knowledge about classroom management is sufficient to bring about an improvement in classroom teaching. Two sets of data were collected from 15 randomly selected dyads composed of a principal and a teacher, one set before and one set after a school improvement workshop. Utilized were four study groups: (1) principals but not teachers participating in workshops (4 dyads), (2) principals and teachers participating (4 dyads), (3) teachers but not principals participating (3 dyads), and (4) neither principals nor teachers participating (4 dyads). Findings indicate that supervision may be more effective when both principals and teachers are provided with the same research-based knowledge about classroom management, and that principal-led supervision may not be the most useful approach to improving classroom management. Conceptual levels and various demographic variables are also considered in relation to supervision in classroom teaching performance. Included are 58 references, 8 tables, and 2 appendices. (WTH)

A STUDY OF THE EFFECTS OF SUPERVISORS' INTERVENTION ON TEACHERS' CLASSROOM MANAGEMENT PERFORMANCE

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Paper presented at the Annual Meeting of the Canadian Association for Teacher Education. Hamilton, Ontario: May 31, 1987.

The study reported in this paper was funded by the Social Sciences and Humanities Research Council of Canada (Grants #410-85-0339 & #410-86-2014). The authors gratefully acknowledge that this work could not have been carried out without this funding. The opinions expressed in this paper do not necessarily reflect the policy, position, or endorsement of SSHRC. The authors also acknowledge the contributions of Maryl Stewart, Bruce McGillivray and Nelda Oman to the data collection, data analysis and manuscript preparation aspects of the study respectively.

The research on supervision and school effectiveness suggests that principals acting as supervisors of instruction make a difference in teacher performance and pupil learning. Indeed, the importance of the principal's role is the focus of most of the textbooks used in graduate level courses on supervision and instructional leadership. But is this emphasis on principal-led supervision truly justifiable? The findings reported in this paper raise misgivings about the effects of such hierarchical intervention on teachers' classroom management performance. At the same time, however, the findings seem to confirm the effects of interventions based on collegiality. Following the statement of purpose, the paper is presented in six major sections, as follows: a brief but succinct literature review, an overview of the method, the types of data collected, the data analysis procedures, some selected findings, and a final section which discusses those findings in light of current knowledge and offers some tentative conclusions.

PURPOSE AND OBJECTIVES

Why supervise teachers? Why supervise along clinical lines? Why not cooperative staff development practices with no superordinate intervention? These questions haunt the serious-minded person who wishes to see the ever-dwindling resources in education allocated to those pursuits that make a difference in the education of teachers and the consequent learning of pupils.

Purpose

This study sought to test the effects of supervisory intervention on supervisee classroom teaching. Specifically, it set out to examine whether effective clinical supervision requires supervisors who practice certain strategies and procedures as they dialogue with supervisees in the conference, or whether the mere acquisition by supervisors and/or supervisees of research-verified knowledge about teaching and learning, e.g., classroom management is sufficient to bring about an improvement in the classroom teaching of supervisees.

This study builds on a preliminary study (Grimmett, 1984) which found certain questioning strategies and exploration procedures (i.e., "process" skills) were utilized by supervisors whose supervisees showed some evidence of developmental growth as a result of the intervention. Since these effective supervisors also evidenced high conceptual functioning, it was tentatively concluded that the clinical approach to instructional supervision requires supervisors capable of understanding the complexities of supervisory intervention, i.e., those functioning at a high conceptual level. What the previous study did not take into account was the role played by the "content" of conference discussions in the professional development of supervisees. Accordingly, this study sought to test the effects of supervisor "process" skills vis-a-vis "content" about teaching and learning on the observable classroom performances of supervisees.

Objectives

Specific objectives for the study were:

1. to investigate the relationship between supervisor questioning strategies/exploration procedures and effective intervention (as indicated by an improvement in supervisee classroom teaching).

2. to examine the relationship between effective intervention and the existence of a knowledge and language about teaching-learning situations (i.e., classroom management) that is common to both supervisor and supervisee.

3. to establish whether supervisee knowledge about classroom management is, in itself, sufficient to bring about an improvement in supervisee management performance.

4. to examine the "process" vis-a-vis "content" effects on supervisee classroom teaching in light of the conceptual level of both the supervisor and the supervisee.

LITERATURE REVIEW

Typically, instructional supervision is conducted by principals. However, research suggests considerable divergence in such activities. Where teachers relate experiencing high anxiety (McGee & Eaker, 1977; Withall & Wood, 1977) and at best tolerating administrator observations (Blumberg, 1980), supervisors themselves hold the constrasting view that their interventions effect improvement in classroom performance (Blumberg, 1980, Cawelti & Reavis, 1980). This finding is hardly surprising, given that the major texts (e.g., Alfonso *et al.*, 1975; Bellon *et al.*, 1976; Cogan, 1973; Glickman, 1985; Goldhammer *et al.*, 1980; Harris, 1985; Lovell & Wiles, 1983; Lucio & McNeil, 1979; Mosher & Purpel, 1972; Reavis, 1978; Sergiovanni & Starratt, 1983) are based on the premise that supervisors can make a difference. The limited research conducted on supervision (Boulet, 1981; Coffey, Reavis, 1978; Skrak, 1973; Zonca, 1972) confirms this premise. Also, the voluminous research on school effectiveness (Austin, 1979; Brookover *et al.*, 1979; Clark *et al.*, 1984; DeBevoise, 1984; Dwyer, 1984; Hall *et al.*, 1984; Irvine, 1979; Leithwood & Montgomery, 1982, 1986; Levine *et al.*, 1984; McLaughlin & Marsh, 1978; Purkey & Smith, 1983; Rutter *et al.*, 1979; Snyder, 1983; Squires *et al.*, 1981; Sweeney, 1982) suggests that principals use supervision as one way of executing the instructional leadership role found to have a strong impact on the program.

The research on staff development (Berman & McLaughlin 1978; Bussis *et al.*, 1976; Gersten *et al.*, 1982; Lieberman & Miller, 1979, 1981, 1984; Little, 1982; Nemser, 1983; Oja, 1980; Sparks, 1983; Zumwalt, 1986) suggests, however, that teachers develop more through collegial rather than hierarchical intervention. Two versions of collegial intervention appear to be extant. One involves principals with teachers; the other involves only teachers. Hunter (1984, 1985) has continually argued that principals and teachers need to be exposed together to elements of instruction so as to develop a common language/understanding. Showers' (1983) study confirms that principals acting as peer coaches are effective in helping teachers improve instruction. Yet Sparks (1983) reports that bringing teachers only together in small groups to study knowledge of teaching has an impact on instuctional performance. This was also found by Anderson *et al.*

(1979), Crawford *et al.* (1978), Evertson *et al.* (1982), Good & Grouws (1979), Holly (1982), Leslie (1982), and Schiff (1982).

METHOD

This was a preliminary study conducted in the naturalistic setting of schools and classrooms located in a large urban district. Data were collected from a sample of 15 supervisory dyads prior to and following a series of workshop interventions. These data were then subjected to both quantitative and qualitative analyses.

Sample Selection

Following extensive negotiations with the Central Office, culminating in agreement by the Principal Investigator to give a school improvement workshop to district administrators, a total of 28 elementary school principals volunteered to participate in the study. Interviews were conducted with each of these principals to explain the project. Unfortunately, some principals felt they could not afford the time required to take part and others were not able to elicit the cooperation of a teacher to form the supervisory dyad. As a result of these and other difficulties, the final sample was composed of 15 elementary principals each of whom secured the participation of one teacher in his or her school for a total of 15 dyads.

Study Groups

Following the initial interviews, but prior to the first round of classroom observations, each of the 15 participating principals and teachers were given a Paragraph Completion Test (Schroder *et al.*, 1967) to measure conceptual level. The conceptual level scores were trichotomized and the principals' scores used to establish four randomly stratified groups of supervisory dyads. Each of the four groups was assigned an equal number of principals[1] with high, moderate, and low conceptual level (CL) scores on a random basis. The four groups, each of which received a different treatment, were designated as follows:

1. Experimental group (n=4 dyads) in which the principals, but not their teachers, attended both the classroom management and the supervision strategies/skills workshops;[2]

2. Treatment #1 group (n=4 dyads) in which both the principals and their teachers attended only the classroom management workshops;Principal's CL scores: one low, two moderate, one high.

3. Treatment #2 group (n=3 dyads) in which the teachers, but not their principals, attended only the classroom management workshops;[3]

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[1]Following the random assignment of principals to study groups, one of the teachers withdrew from the project. This resulted in three groups of four dyads and one group of three dyads.

[2]Principal's CL scores: two low, one moderate, one high.

[3]Principal's CL scores: two moderate, one high (the low CL principal could not participate because the teacher withdrew; see footnote 1).

4. Control group (n=4 dyads) in which neither the principals nor their teachers attended any workshops.[4]

DATA COLLECTION

Two sets of data were collected, one set before the workshop interventions (pre-workshop data, November-December, 1985) and one set following the workshop interventions (post-workshop data, March-April, 1986). Each of these two data sets contained two subsets, namely classroom observation data and supervisory conference data.

Classroom Observation Data

The first subset, collected by two independent coders using instruments developed by Good and Brophy (1984) and by Evertson and Emmer (1981, 1982), consisted of observation data which focused on the teachers' classroom management behaviours.[5]

Classroom Observation Record. The Good and Brophy portion of the instrument, referred to as the "Classroom Observation Record", looked at the teachers' classroom management behaviour in terms of transitions and group management, the level and frequency of pupil attentiveness, and reactions to pupil misbehaviour in situations related to class configurations. Added to the instrument was a narrative record of the nine research-based and validated management dimensions from the "Texas studies". The Classroom Observation Record was completed from extensive field notes written by the recorder during the observation period which ranged from 45 to 60 minutes depending upon the lesson being taught. This was done independently by each recorder on the same day as the observation was made.

Component Rating Scale. The Evertson and Emmer portion of the instrument was a "Component Rating Scale" containing a total of 49 items in the same nine categories mentioned above. Each item was rated on a five point scale (1-5) to produce a score for each category and an overall score across all items. The rating scales were completed independently by the coders immediately following completion of the Classroom Observation Record.

Supervisory Conference Data

The second subset consisted of supervisory conference observations collected by videotaping the principal-teacher interaction and by audiotaping a post-conference stimulated recall interview conducted separately with each principal and teacher in the dyad. Two points should be noted in connection with the videotaped conferences. First, each principal had observed the same lesson as had the two independent recorders. The principals had been asked, as part of their own focus, to observe the teachers' classroom management performance. Second, the videotaping was done without the presence of a camera operator. The camera

[4] Principal's CL scores: two low, one moderate, one high.

[5] Prior to the pre-workshop data collection, training in the use of the instruments was given to the observers. Following seven hours of coding practice, an inter-rater reliability level of 0.86 was reached.

was mounted on a tripod, turned on by the Principal Investigator who then left the room, and was switched off by the subjects themselves at the end of their conference.

To summarize, each pre- and post-workshop data set consisted of 30 Classroom Observation Records (two for each teacher), 30 Component Rating Scales (two for each teacher), 15 videotaped post-conferences (one for each dyad), and 30 audiotaped stimulated recall sessions (one for each principal and one for each teacher). In addition to these data, the principals and teachers completed demographic questionnaires concerning factors such as years of experience, length of time in present school, and number of years with present principal.

WORKSHOP TREATMENTS

Two sets of workshop interventions, one on classroom management and one on supervision strategies/skills were held between the two rounds of classroom observations, post-conferences, and stimulated recall interviews.

Classroom Management Workshops

A series of three, three-hour workshops were held on consecutive afternoons in the third week of January, 1986. These workshops were attended by all teachers except those in the control group and by principals in the experimental and treatment #1 groups. The workshop materials were drawn from the validated research-based knowledge about effective classroom management developed by Evertson (1984) and her associates at the University of Texas at Austin. Workshop methods included presentations, discussions, and "hands-on" simulations. Each of the three workshops focused on a different dimension of classroom management. The first topic was "Room Arrangement", the main principles being traffic patterns, disruptions, and monitoring. The second topic was "Pupil Behaviour", the main principles being monitoring, consistency, and prompt action. The third topic was "Instruction", the main principles being sequencing, pacing, transitions, and clarity. For all three topics, the principles were operationalized to allow teachers to apply them in their own classrooms.

Supervision Workshops

A series of two, three-hour workshops on the supervisory process were held on consecutive afternoons during the first week of February, 1986. These workshops were attended only by the principals in the experimental group. The workshop materials were based on the findings of a previous study (Grimmett, 1984) and on the research literature concerning the supervision of teaching (e.g., Blumberg, 1970; Glickman, 1985; Goldhammer *et al.*, 1980, Sergiovanni and Starratt, 1983; Wallen, 1971). Workshop methods included presentations, discussions, and role-playing. The first workshop focused on interpersonal skills; the second on conferencing skills and strategies. The subtopics within each focus provided the participants with specific ways by which to enhance their skills in the supervisory process.

LIMITATIONS

Because the sample size was too small to warrant tests for statistical significance, the findings of this preliminary study are not, at this point, generalizable to the larger population of elementary principals and teachers. Further, the simple pretest-posttest research design renders it impossible to ascertain whether the treatment effects found in this study would hold over time.

DATA ANALYSIS

The data analysis was conducted in four phases, the first of which was preliminary to determine whether or not the two independently recorded sets of Classroom Observation data could be combined for the ensuing analyses. The second phase examined the classroom observation data. In the third phase, the supervisory conference data were analyzed. The fourth phase integrated the results of the classroom observations and conference data analyses. Since this paper deals only with the findings from the classroom observation data, no details of the analysis procedures are included for the third and fourth phases.

Phase I: Preliminary Analysis

As explained at the beginning of the "Data Collection" section, two coders independently completed the Component Rating Scale. If the ratings assigned by the two independent coders were to be combined both within and across categories, it was necessary to determine that no significant differences existed between the observers. None of the independent t-tests conducted on the pre-workshop and post-workshop category and overall scores revealed significant differences between the two observers. As a further check on comparability, Pearson product moment correlations were computed as a measure of inter-rater reliability. The pre-workshop category correlations ranged from a low of 0.43 to a high of 0.70; the post-workshop ones from a low of 0.75 to a high of 0.96. Strong correlations were also found between the overall scores assigned by each observer (pre: $r=0.70$; post: $r=0.92$). In addition to these statistical procedures, a third check for coding reliability was made using triangulation. Following completion of the pre-workshop and of the post-workshop observations, three randomly selected Classroom Observation Records for each observer were given to a third coder who had not been present at the observations. The third coder was given blank Component Rating Scales to complete on the basis of the information in the Observation Records.[6] The reliability coefficient for the pre-workshop observations was 0.83; for the post-workshop observations, 0.85. On the basis of the results from the statistical tests and the triangulation, the two sets of independent ratings were combined for the second phase of the data analysis.

Phase II: Classroom Observation Analysis

The analysis of the classroom observation data was carried out in two parts. The first part involved a content analysis of the Classroom Observation Record; the second, a quantitative analysis of the Component Rating Scale. Although the results of the content analysis are not reported in this paper, a brief explanation is presented in order to show its relevance to the study.

[6]It will be recalled that the Observation Record included a narrative report on each of the nine dimensions of the Component Rating Scale.

Content analysis: Observation Record. The main purpose of this analysis was to determine qualitatively whether or not there were changes in the observed classroom management behaviours of the teachers from the pre-workshop to the post-workshop observations. The content analysis also served three additional purposes. First, it identified those managment focii which were common to both the supervisory conference and the observers. Those aspects which were congruent not only between principal and observers, but also from the pre- to the post-observation were useful in ascertaining changes in the teacher's management behaviours. The stimulated recall audiotape data provided information as to whether or not the subject attributed the change(s) to the workshop interventions.

Second, by comparing the content analysis results of the Classroom Observation Records with those of the quantitative analysis from the Component Rating Scales, it was possible to establish some measure of internal validity between the two instruments. Third, the items emerging from the content analysis served to confirm or disconfirm some of the items issuing from the "Texas studies" (Emmer and Evertson, 1981, 1982). The results of this comparison will be used in subsequent revisions to the Component Rating Scale.

Quantitative analysis: Component Rating Scale. The main purpose of this analysis was to ascertain quantitatively whether or not, and if so to what extent, there were changes in the observed classroom management behaviours of teachers from the pre-workshop to the post-workshop observation. In conjunction with the qualitative content analysis of the Classroom Observation Record, the Rating Scale also provided a measure of internal validity. Since the preliminary analysis had established a satisfactory level of inter-rater reliability, the ratings across the two independent coders were combined to produce pre and post scores for each of the nine categories[7] of variables and overall scores across the categories. These scores were computed both within and across teachers. Subsequent to computing the two sets of scores, categories 4, 6, and 9 were dropped from the analysis because many of the variables had been coded as "not applicable" by the observers. As a result, the overall scores were re-calculated based on the six categories retained for analysis. The pre-workshop scores were subtracted from the post-workshop scores to produce change scores both within and across teachers for each selected category and for all six categories together (i.e., overall change scores). These change scores constituted the focus of several further analyses.

Change score analysis. In order to ascertain what factors were associated with changes in teachers' classroom management behaviour, the change scores were partitioned using four different variables. The first analysis partitioned the change scores according to study group. This procedure made it possible to compare the magnitude and direction of change for the experimental, treatment #1, treatment #2, and control groups. The second analysis examined change in terms of classroom management workshop topic-related variables. This analysis differed from the first one in that the workshop topic-related variables crossed over different categories. For this reason, a new set of change scores was computed by combining the scores on those variables appropriate to each of the three topics.

[7]The nine categories were: (1) Instructional Management (2) Room Arrangement (3) Rules and Procedures (4) Meeting Pupil Concerns (5) Managing Pupil Behaviour (6) Disruptive Pupil Behaviour (7) Inappropriate Pupil Behaviour (8) Classroom Climate (9) Miscellaneous

Each set of workshop-topic related variables was mutually exclusive (i.e., each variable used only once). This analysis permitted a within-study group comparison of change across all selected category variables with those variables specific to the content of each workshop.

The third analysis of change was based on conceptual level, the purpose being to determine whether change associated more strongly with principal's conceptual level, teacher's conceptual level, or their paired conceptual levels. This was accomplished by trichotomizing each of the two "individual" levels and dichotomizing the paried levels.

The fourth analysis explored the relationship between the teachers' change scores and six demographic variables, of which only three are reported in this paper.[8] Teacher's experience, teacher's years with present principal, and principal's experience as principal were trichotomized in order to compare the teachers' change scores within each group for each variable.

Summary of Data Analysis

The data analysis was conducted in four phases, only the first two of which are reported herein. The preliminary phase dealt with the question of inter-rater reliability between the two independent observers. Three procedures were used on both the pre-workshop and post-workshop observation data, namely: (1) t-tests, (2) Pearson r, and (3) triangulation. The results indicated that the independent ratings could be combined for the second phase. The second phase analyzed the classroom data by means of a content analysis of the Observation Records and a quantitative analysis of the Component Rating Scores. These pre- and post-workshop scores were used to compute change scores which formed the basis of the analysis of change in terms of four variables. Only the findings from the quantitative and change analyses are reported in this paper.

SELECTED FINDINGS

As indicated in the previous section, this paper presents only some of the findings from the study. More specifically, the reported results are those from the quantitative analysis of the Component Rating Scale and the ensuing analysis of change in the classroom management behaviour of the teachers. The findings from the study groups are given first followed in order by those from the classroom maangement workshop interventions, conceptual level, and the demographic variables. The section concludes with a brief summary of the main findings.

Study Groups

It will be recalled that the principals were randomly assigned, on the basis of conceptual level, to one of four different groups in the study. The principals only in the experimental group received both the classroom management ("content") and the supervision skills and strategies ("process") workshops. The principals and teachers together in the treatment #1 group were given the classroom management

[8]The procedure was the same for teacher's years in present school, principal's years in present school, and principal's estimate of formal training in the supervision of teaching.

workshops, as were the teachers only in the treatment #2 group. Members of the control group received neither the content nor the process workshops.

The data displayed in Table 1 are the individual teacher's change scores within and across selected categories for each study group. It is clear that there are more positive scores in the two treatment groups than in the experimental and control groups. Viewed proportionally, only 54% of the change scores in the experimental group are positive compared with 67% in the control group and 83% in each of the two treatment groups. However, the negative values disappear in the across category change scores for treatment group #1 while half of them remain negative in the experimental group.

Insert Table 1 about here

Contrary to expectation, the teachers in the experimental group were associated with an overall negative effect. By contrast, those in the two treatment groups were associated with positive effects in classroom management performance. That the teachers in the treatment #1 group had the highest positive change score while those in the experimental group had the only negative change score suggests that supervision may be more effective when both principals and teachers are provided with the same research-based knowledge about classroom management. In other words, when the supervisor and the supervisee share a common language around which to frame their dialogue, the teacher's classroom management improves. In addition, it seems that when teachers only are given the same research-based knowledge, their classroom management performance also improves, as evidenced by the fact that the treatment #2 group had a positive change score which was more than twice as high as that of the control group. This finding lends support to the idea that improvement in teaching may be accomplished through a staff development approach. Taken together, the findings for treatment groups #1 and #2 seem to suggest that the hierarchical, principal-led approach to supervision, represented by the experimental group, may not be the most useful method by which to improve teachers' classroom management performance.

Workshop Interventions

The three classroom management workshops were given to the principals in the experimental and treatment #1 groups and to the teachers in treatment groups #1 and #2. Because the experimental group principals were the only ones to receive also the two supervisory process workshops, it was expected that their teachers would show more improvement in classroom management than would the teachers in any other group. However, as the data in Table 2 indicate, this was not the case. Bearing in mind that the change scores within each workshop topic are based on groups of variables which cut across the selected categories, the two treatment groups are again associated with more positive effects than are the

experimental and control groups. The latter two groups show a 50-50 split

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Insert Table 2 About Here

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between positive and negative change scores. By contrast, 67% of the change scores in treatment group #1 are positive as are 57% in the treatment #2 group. When the change scores are combined across both teachers and workshop topics, the experimental group is again associated with an overall negative effect; both the treatment groups are associated with overall positive effects. Apart from the magnitude of the two treatment group scores, the only difference is that treatment #2 had the higher overall score across workshop topics while treatment #1 was higher across selected categories. These findings continue to raise doubt about the effectiveness of hierarchical intervention while, at the same time, lending credibility to the efficacy of teacher-based approaches.

Principal Conceptual Level

Although the superior improvement in the classroom management performance of the collegiality - and staff development-based groups is an important outcome, there is another significant finding to emerge from the data in Table 2. It will be recalled that the study groups were established by randomly assigning principals to groups on the basis of conceptual level (CL). With the exception of treatment #2 in which there were no low CL principals,[9] there is a fairly consistent association between low CL principals and negative change scores. In each of the experimental and control groups, five of the six negative values come from teachers whose principals are low CL, as do two of the four negative scores in treatment group #1. In the overall picture, 12 of the 19 negative change scores are associated with low CL principals. By contrast, only three negative values are associated with high CL principals and four with principals of moderate CL. The overall change scores for each workshop topic, displayed in Table 3, show very clearly that teachers working with high CL principals improved their classroom

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Insert Table 3 about here

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management performance more than did those working with principals of moderate CL. Low CL principals are associated only with negative effects on teachers' classroom management behaviour. When the control group change scores are partialled out from each of the principal CL groupings, the same pattern of superior improvement by teachers working with high and moderate CL principals remains. It is clear that the conceptual level of the principals, both individually and collectively, is an important factor in the improvement of teachers' classroom management performance. However, it is possible that the teacher's conceptual level may also be an important factor in the improvement process.

[9] See footnote 4 for explanation.

Teacher Conceptual Level

When the change scores for selected categories and workshop topics are sorted according to the teachers' conceptual level (TCL), the pattern of results closely ressembles those for study groups and principals' conceptual level.

Insert Table 4 about here

To some extent, these similarities are to be expected because there is an overlap of some scores within each CL grouping (see tables in Appendix A). Yet, despite this unavoidable lack of exclusivity, low TCL is again associated with negative effects while both moderate and high TCL are associated only with positive effects. However, the magnitude of that association is generally less than it was when the change scores were grouped by principal conceptual level.

At this point, there are three results in particular to be noted. First, as shown in Tables 3 and 4, there were more similarities than differences between the two sets of conceptual level-based change scores. Second, as shown in Table 2, the individual teacher's change scores vary considerably depending upon the particular combination of principal and teacher conceptual levels. Third, regardless of whether the change scores are based on selected categories (Table 1) or the more definitive workshop topic-related variables (Table 2), the teachers in the control group collectively performed almost as well as those in treatment group #1 and #2. Even more surprisingly, the control group outperformed those in the experimental group to the extent that the overall change scores for the latter were consistently negative.

Collectively, these results suggested that sets of variables other than those directly related to the workshop interventions might be associated with positive effects on teacher classroom management performance. Further analysis revealed two sets of important variables. One such set of variables concerns principal-teacher conceptual level pairing; the second, principal and teacher demographic factors.

Principal-Teacher Conceptual Level Pairing

As shown in Table 2, dyads in which principals and teachers were either high or moderate CL were generally associated with positive change in observed classroom management performance. By contrast, low CL principal and teacher dyads were predominantly associated with negative change scores. Indeed, the distinction between low CL principals, teachers and high/moderate CL princpals, teachers was so marked as to warrant dichotomizing the variable on this basis. The two groups of paired conceptual levels are displayed in Table 5. Across

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Insert Table 5 about here

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selected categories and all workshop topic-related variables, the paired conceptual level group of high/moderate CL principals and teachers (P,T:HM) outperformed the group of low CL principals interacting with teachers of low or high/moderate CL (P:L,T:LMH) in terms of change scores for observed classroom performance. Only on workshop topic 1 were both scores positive, although when the control group teachers are included, the P:L,T:LMH score for topic 1 is negative.

These data suggest that change in observed teacher classroom management performance results from treatments structuring teacher involvement with content (i.e., "common language strategy" and teachers only staff development intervention) interacting with the principal-teacher conceptual level pairing in each supervisory dyad. In addition to the influence of CL pairing and type of treatment, the change scores were also examined in light of demographic variables.

Demographic Variables

The three demographic variables presented in this paper were selected for inclusion on the basis of "overlapping membership". Teacher's years of experience, teacher's years with present principal, and principal's experience as principal were chosen because there was minimum of overlap in the teachers' change scores when these variables were trichotomized (see Tables A.1 and A.2 in Appendix A).

Teacher years of experience. The classroom experience of the teachers in the sample fell into three groups: those with 3-5 years (n=2), those with 11-15 years (n=6), and those with >15 years (n=7). The data displayed in Table 6 show that for both selected categories and workshop topics, the most experienced

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Insert Table 6 about here

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teachers were the ones who had the highest change scores. It is worthy of note that all but one of the teachers in this group were working with high/moderate CL principals and all but two of them were members of treatment groups #1 or #2.

The teachers in the mid-range of experience improved marginally and by almost identical overall scores on both selected categories and workshop topics. It is possible that the small positive effect and the two negative change scores on topics 1 and 3 may be attributable to the fact that three of the six teachers in this group were interacting with low CL principals. This possibility is given some credibility by the results derived from analyzing the workshop topic scores of teachers in the middle group in terms of the two CL pairings. The three more experienced teachers in the P,T:HM group had scores of 0.583, 0.596, and 0.260, respectively, on topics 1, 2, and 3. Their overall workshop topic score was 0.480. By camparison, the three teachers in the P:L,T:LMH group had scores of -0.750, 0.100, and -0.647, respectively, on topics 1, 2, and 3. Across all three topics, they were associated with an overall negative effect (-0.432). These findings leave little doubt regarding the importance of the interactive effects of conceptual level pairing and teacher experience.

Less can be said with confidence about the teachers with the least experience since there were only two of them in the group, one from each CL pairing. However, they did have the greatest number of negative scores and the only overall negative effect for the selected categories. Yet, on the more definitive workshop topics, they showed an overall positive effect. This is the only finding to emerge which lends support to the hierarchical approach; both principals were in the experimental group.

Principal experience as principal. This demographic variable was trichotomized to yield three different levels of experience. The results, displayed in Table 7, seem at first glance to be somewhat contradictory for the selected categories and the workshop topics. On the selected categories, which include 13 non-workshop related variables, the greatest gains in observed classroom

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Insert Table 7 about here

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management performance occurred in teachers supervised by principals with more than ten years of experience. The smallest gains associated, not with teachers supervised by the least experienced principals, but with teachers supervised by principals in the mid-range of experience. This same group of principals are also associated with the least improvement in their teachers' classroom management behaviour across the workshop topics. However, on the workshop topics, the overall change scores for teachers supervised by the most and least experienced principals are the reverse of the selected categories. That is, the greatest gains occurred among those teachers supervised by the least experienced principals while the most experienced principals were associated with the middle gain score teachers. This outcome is not as surprising as it appears to be because the teachers working with the least experienced principals, three of whom were high/moderate CL, showed very strong improvement in topic 1, the least complex of the workshop topics. As topic complexity increased, the teachers' scores steadily decreased with a negative effect for instructional management. By contrast, the teachers supervised by the most experienced princpals had not only positive changes for the more complex topics 2 and 3, but also the highest of all six scores for these two topics.

Teacher years with present principal. As with the two previous demographic variables, the number of years the teachers had worked with their present principal was trichotomized to produce the three levels shown in Table 8. These findings, unlike those for the principal's experience, are consistent in both

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Insert Table 8 about here

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magnitude and direction for the selected categories and for the workshop topics. The strongest improvement comes from those teachers who have spent the greatest number of years working with their present principals. The only overall negative effects occur among teachers who have been supervised by their present principals for just one year.

These results suggest that, while teacher and principal experience may be important variables in the improvement of classroom management behaviour, the critical factor seems to be teacher years with present principal. This implies that some dynamic, interactive variables operate between principal and teacher to create an environment in which classroom management performance can be improved and that these as yet unknown variables have an increasingly powerful effect the longer the dyad exists. At what point beyond four years diminishing returns set in cannot be ascertained by the present data.

Summary of Selected Findings

The summary is presented in two parts. The first part lists the main findings to emerge from the analyses of the sampling variables, study group and conceptual level, and the substantive variable, workshop topic. The second part lists the main findings from the analyses of the demographic variables with some reference to conceptual level which was the most important independent variable in the study.

Sampling and substantive variables. The main findings from the analysis of the experimental group are that:

1. positive effects on teacher classroom management practices of supervisor process skills (questioning strategies/exploration procedures) and supervisor content (research-validated knowledge about classroom management) associate only with moderate/high conceptual level (CL) supervisors interacting with moderate/high CL teachers;

2. the teaching of process skills as a compensatory model to low CL supervisors interacting with teachers of low or moderate/high CL, in addition to classroom management content, does not associate with improved teacher classroom management performance;

The findings from the analysis of treatment group #1 are that:

3. the teaching of classroom management content to both supervisor and teacher so as to provide a common language/understanding correlates positively in moderate/high CL teachers with improved performance on practices addressed by the content.

4. a "common language strategy" overcomes negative effects of low CL supervisors interacting with moderate/high CL teachers;

5. the positive effects on classroom management performance of a "common language strategy" associate only with teachers of moderate/high CL;

The findings from the analysis of treatment group #2 is that:

6. teacher exposure to classroom management content alone is sufficient in teachers of moderate/high CL interacting with moderate/high CL supervisors to bring about improvement in classroom management practices; and

The finding from the analysis of the control group is that:

7. where no treatment is given, interactions between low CL supervisors and low CL teachers associate with negative effects on classroom management performance, while interactions between moderate/high CL supervisors and moderate/high CL teachers and between moderate/high CL supervisors and low CL teachers associate with positive effects.

Demographic variables. The main findings from the analyses of three demographic variables are that:

8. positive effects on teacher classroom management performance are greatest when very experienced teachers are given substantive knowledge about classroom management and interact with high/moderate CL principals;

9. high/moderate CL teachers in the mid-range of experience interacting with high/moderate CL principals are associated with the greatest gains on workshop topic-related variables;

10. the overall effects for mid-range experience teachers may be attenuated by the supervisory approach of low CL principals;

11. the most experienced principals are associated with the greatest gains when all aspects of the teachers' classroom management performance are taken into account;

12. principal experience is directly related to the complexity of the classroom management workshop topics (i.e., the greater the years of principal experience, the higher the scores on the more complex topics);

13. an overall negative effect is associated with supervisory dyads which have existed for only one year; and

14. the greatest gains in observed classroom management performance are associated with those supervisory dyads which have existed for two or more years.

DISCUSSION AND CONCLUSIONS

The selected findings reported above suggest four different themes for discussion. First, it is important to consider the claims of hierarchical versus collegial supervision. Second, ths "process" versus "content" debate will be addressed. Third, the importance of conceptual level, particularly the "match" between principal and teacher, will be discussed. And finally, the relationship between practitioner experience and openness to learning will be addressed.

Hierarchical or Collegial Supervision

Much of the literature on supervision and school effectiveness considers it axiomatic that principals acting as instructional supervisors make a difference in teacher classroom performance. The exploratory study (Grimmett, 1984), on which the supervision workshop interventions for this study were based, had this assumption built into the design. Consequently, rather than investigating the impact of principal-led supervision on classroom teaching performance, Grimmett examined the conference dialogue and thought processes of supervision participants in four dyads with a view to discovering what made two of them effective in the eyes of the participating supervisors and teachers. The question of whether the strategies and procedures used by the two supervisors deemed to be successful had any effect on actual classroom practice was not mooted. However, based on the axiomatic assumption that principals *do* make a difference, Grimmett concluded that the questioning strategies and exploration procedures unpacked by the study were potential indicators of supervisory effectiveness.

The current study has found such a conclusion to be somewhat wanting. Far from corroborating the findings of the 1984 study and the various studies conducted on school effectiveness, this study raises misgivings about the effects of principal-led supervision on teachers' classroom management performance. At the same time, the findings appear to corroborate previous research on the effects of a "common language strategy"(Hunter, 1984), whereby principal and teacher together study research-validated knowledge about classroom management; they also confirm studies of staff development practices (e.g., Sparks, 1983) which found that teachers' classroom performance is positively affected by their meeting together with other teachers, without administrator involvement, to study knowledge about teaching and learning. Relative to collegial intervention, heirarchical intervention appears to have only minimal positive effect on teachers' classroom management performance.

The argument could be made that the strategies discovered by Grimmett (1984) only take effect when a "common language stratgy" is also used and that the design of the current study did not take this into account. In other words, these strategies may work when a collegial-type intervention is added to the typical hierarchical approach of principal-led supervision. But this point, well taken as it is, in no way detracts from the current study's results. Indeed, it serves to reinforce the finding that collegial approaches have a far greater effect on actual classroom performance than do hierarchical ones. At the same time, it comments on the relationship between process and content which the study also sought to explore.

Content with Process versus Content only

It would seem to make inordinate sense that the combination of content with process would render far greater positive effects on teachers' classroom management performance than mere content on its own. But this is not the case. Those groups in which the interventions focused only on the content of classroom management (treatment groups #1 and #2) produced greater positive effects on classroom performance than the experimental group in which the intervention gave principals a process and content focus. It could be argued that, because the content with process treatment was tried only with the hierarchical approach, the results do not accurately reflect the potency of such a combination. It could equally be argued that, if the experimental treatment had included a "common language strategy", as was suggested in the previous section, the principals process strategies could possibly have demonstrated a more noticeable impact on how teachers internalized and implemented the practical content of classroom management. The bottom line of the current study's findings, however, is that, while the content only treatments are associated with overall positive effects, both content with process and content only versions appear to be moderated by the hierarchical or collegial focus built into the study's design. But that same design also permitted an investigation of the content with process treatment vis-a-vis the content only treatments in light of the conceptual level of the participating supervisors and teachers. And this investigation suggested a further moderating effect on the two approaches, namely the effect of conceptual level. In this regard, the findings are confirming and extending.

Grimmett's (1984) previous conclusion associating positive effects of the process strategies on classroom practice with supervisors of high conceptual level is supported. But the conceptual level of teachers also emerges as an important variable. Positive effects of the content with process treatment are associated not only with high CL supervisors but also with high and/or moderate CL teachers. They are not associated with low CL supervisors who appear to have a levelling effect on teachers regardless of the latter's CL. Similarly, the positive effects of the content only treatments are associated with supervisors and teachers of both moderate and/or high CL. In other words, although the overall effects on classroom performance are clearly greater in the content only treatments than in the content plus process intervention, positive effects, wherever they are found, are nevertheless associated with high CL. Conceptual level appears, then, to be a most important variable, particularly the "match" that exists between supervisor and teacher.

Conceptual Level "Match"

Developmental theorists(e.g., Glickman, 1985) suggest that the ideal conceptual level "match" pertains when the supervisor is one stage of development ahead of the teacher. This, they argue, create the kind of positive disequillibrium that has been found to motivate teachers to growth and improvement. Similarly, the most counterproductive "match" occurs when the teacher is developmentally more mature than the supervisor (see Thies-Sprinthall, 1980) or when supervisor and teacher are both at a low level of conceptual development(see Grimmett, 1984).

The conceptual level pairings that emerged in this study produced three examples of the ideal "match" (dyads 13, 14, 15) and five examples (dyads 05, 07, 09, 10, 12) of the counterproductive "match". The findings reported under

conceptual level pairing above generally bear out the developmental hypothesis that supervisors working with teachers of slightly lower CL are able to effect considerable improvement in observed classroom performance. They also confirm Thies-Sprinthall's (1980) dire conclusion that supervision conducted by principals of lower CL than the participating teachers is essentially "miseducative". But there are some interesting wrinkles. One of the five dyads (05) representing the least productive "match" proved to be an exception. This seems to suggest that, although this kind of "match" is generally unproductive, its effects can be attenuated by a collegial intervention such as the "common language strategy". Moreover, the dyads showing positive change in observed classroom management performance were not restricted to those which constituted the ideal "match". Dyads, in which the supervisor and teacher were both moderate CL (03, 04, 06, 08), both high CL (02), and in which the supervisor was moderate CL and the teacher high CL (01, 11) , also evidenced positive effects. These findings would suggest the need for an expanded definition of the ideal "match". Rather than stressing the slight developmental maturity of the supervisor over the teacher, developmental theory should emphasize the high and/or moderate conceptual level pairing between supervisors and teachers as the most productive "match".

The conceptual level "match" theory put forward by developmentalists does appear to hold in practice. However, its usefulness as a predictive variable is likely to be increased if its definition is expanded to include the conceptual level pairing variable found in this study to be associated with positive classroom effects. The dyads constituting the effective pairings did, however, consist of participants who had many years of experience. The relationship between practitioner experience and openness to learning emerged as a useful one to explore.

Practitioner Experience and Openness to Learning

The literature on taecher induction (Hall, 1982; Tisher, 1984; Veenman, 1984) suggests that beginning teachers, as distinct from experienced ones, are most susceptible to the influence of positive socialization. Yet this study found that, in the area of instructional supervision, the biggest improvements in classroom management performance were associated with *experienced* practitioners. This was particularly the case with the more complex topics of the interventions; indeed, the more complex the classroom focus, the greater the amount of experience required in principals and teachers for positive effects to be found. A vital aspect of this experience was the length of time the teachers had worked with their respective principals; the longer the relationship, the more effective the partnership appeared to be. While beginning teachers may possess considerable potential for improvement, this study's findings suggest that the establishing of the supervisory relationship, deemed by many (e.g., Goldhammer, 1969; Cogan, 1973) to be critical to releasing teachers' instructional potential, could require prior practical experience in principals and teachers. That is not to imply that beginning teachers be ignored by supervising principals; such an action would be ludicrous for beginners need to build up their experience bank. Rather, it is to emphasize that, if districts and schools are keenly interested in making productive use of supervisory resources, then it behooves tem to ensure that experienced teachers are supervised as much as, if not more so than, beginning teachers.

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TABLE 1: CHANGE IN COMPONENT RATING SCORES WITHIN AND ACROSS TEACHERS, WITHIN AND ACROSS SELECTED CATEGORIES, BY STUDY GROUP

STUDY GROUP[1]	TEACHER ID	TEACHER'S CHANGE SCORES[2] WITHIN SELECTED CATEGORIES[3] 1	2	3	5	7	8	ACROSS SELECTED CATEGORIES	OVERALL CHANGE ACROSS TEACHERS
EXPERIMENTAL	06	0.591	-0.250	0.500	0.250	-1.227	0.750	0.191	
	09	-0.702	-0.500	-0.334	-0.857	0.192	-0.500	-0.472	-0.054
	10	-0.536	1.000	-0.800	-0.500	0.356	0.250	-0.333	
	13	0.366	0.250	-0.333	0.625	0.133	0.000[5]	0.272	
TREATMENT 1	01	0.043	0.250	0.367	-0.333	0.777	0.000[5]	0.198	
	05	0.063	0.500	0.200	-0.583	0.053	0.500	0.050	0.319
	08	-0.175	0.500	-0.600	0.250	0.833	0.500	0.217	
	14	0.860	1.000	0.482	0.161	1.500	1.000	0.916	
TREATMENT 2	03	1.050	0.750	0.975	0.750	0.267	1.000	0.839	
	11	0.314	0.000[4]	0.000[4]	0.196	0.318	0.000[4]	0.080	0.294
	15	-0.609	0.750	-0.233	-0.125	0.150	0.000[5]	-0.160	
CONTROL	02	0.369	-0.250	0.750	0.250	0.312	0.750	0.375	
	04	0.492	0.250	0.333	0.607	0.086	0.000[5]	0.185	0.122
	07	-0.944	-1.000	-0.825	-0.500	-0.033	1.250	0.422	
	12	-0.182	-0.750	0.233	0.375	1.500	1.000	0.321	

1. Experimental: principals only; Treatment 1: principals and teachers; Treatment 2: teachers only

2. Post-workshop scores minus pre-workshop scores across all within selected category variables (see Appendix B)

3. Selected Categories:
   - Category 1: Instructional Management
   - Category 2: Room Arrangement
   - Category 3: Rules and Procedures
   - Category 5: Managing Pupil Behaviour
   - Category 7: Inappropriate Pupil Behaviour
   - Category 8: Classroom Climate

4. No change: pre and post scores both 5.000
5. No change: pre and post scores: 4.333 to 4.750
6. No change: pre and post scores: 3.250 to 3.500

TABLE 2: CHANGE IN COMPONENT RATING SCORES WITHIN AND ACROSS TEACHERS, WITHIN AND ACROSS WORKSHOP TOPIC-RELATED VARIABLES, AND CONCEPTUAL LEVELS OF PRINCIPALS AND TEACHERS, BY STUDY GROUP

STUDY GROUP[2]	TEACHER ID	CHANGE SCORES WITHIN TEACHERS[1] TOPIC 1[3]	TOPIC 2[4]	TOPIC 3[5]	ACROSS TEACHERS TOPIC 1	TOPIC 2	TOPIC 3	ACROSS TOPICS	CONCEPTUAL LEVEL PRINCIPALS	TEACHERS
EXPERIMENTAL	06	-0.250	0.622	0.083	0.125	0.107	-0.197	-0.035	Moderate	Moderate
	09	-0.500	-0.389	-0.773					Low	Moderate
	10	1.000	-0.400	-0.382					Low	Low
	13	0.250	0.600	0.333					High	Moderate
TREATMENT 1	01	0.250	0.242	-0.091	0.563	0.123	0.110	0.186	Moderate	High
	05	0.500	-0.495	-0.015					Low	High
	08	0.500	0.009	-0.091					Moderate	Moderate
	14	1.000	0.869	0.583					High	Moderate
TREATMENT 2	03	0.750	1.289	0.932	0.500	0.459	0.086	0.276	Moderate	Moderate
	11	0.000[6]	0.000[6]	-0.083					Moderate	High
	15	0.750	-0.100	-0.485					High	Moderate
CONTROL	02	-0.250	1.100	0.485	-0.438	0.634	-0.064	0.158	High	High
	04	0.250	1.000	0.576					Moderate	Moderate
	07	-1.000	-0.402	-0.917					Low	Low
	12	-0.750	1.091	-0.250					Low	Low

1. Change scores: post-workshop scores minus pre-workshop scores for each group of workshop topic-related variables; based on a five point scale (1-5)
2. Study Group: Experimental (principals only); Treatment 1 (principals and teachers); Treatment 2 (teachers only)
3. Workshop Topic 1: Managing the Room (Variables 2a, 2b; See Appendix B)
4. Workshop Topic 2: Managing Pupil Behaviour (Variables 1j, 1k, 5c, 5d, 6c, 7c; See Appendix B)
5. Workshop Topic 3: Managing Instruction (Variables 1a, 1d, 1h, 1i, 3b, 4b; See Appendix B)
6. No change: pre and post scores both 5.000

TABLE 3: CHANGE IN COMPONENT RATING SCORES[1] ACROSS TEACHERS, ACROSS SELECTED CATEGORIES, AND WITHIN AND ACROSS WORKSHOP TOPICS, BY PRINCIPAL CONCEPTUAL LEVEL (PCL)

PCL	ACROSS SEL CATS[2]	WITHIN TOPIC[3]: ALL TEACHERS			WITHIN TOPIC: SEL TEACHERS[4]			ACROSS TOPICS ALL TEACHERS	ACROSS TOPICS SEL TEACHERS[4]
		TOPIC 1	TOPIC 2	TOPIC 3	TOPIC 1	TOPIC 2	TOPIC 3		
HIGH	0.276	0.438	0.618	0.229	0.667	0.456	0.144	0.428	0.422
MOD	0.313	0.334	0.376	0.220	0.350	0.251	0.149	0.310	0.250
LOW	-0.209	-0.150	-0.119	-0.467	0.334	-0.428	-0.390	-0.245	-0.161

1. Change scores: post-workshop scores minus pre-workshop scores across all within selected category variables or across each group of workshop topic-related variables; based on a five point scale (1-5)

2. Selected Categories:
   (1) Instructional Management
   (2) Room Arrangement
   (3) Rules and Procedures
   (5) Managing Pupil Behaviour
   (7) Inappropriate Pupil Behaviour
   (8) Classroom Climate

3. Workshop Topics:
   1 Managing the Room (Variables 2a, 2b; See Appendix B)
   2 Managing Pupil Behaviour (Variables 1j, 1k, 5c, 5d, 6c, 7c; See Appendix B)
   3 Managing Instruction (Variables 1a, 1d, 1h, 1i, 3b, 4b; See Appendix B)

4. Selected teachers: control group change scores partialled out

TABLE 4: CHANGE IN COMPONENT RATING SCORES[1] ACROSS TEACHERS, ACROSS SELECTED CATEGORIES, AND WITHIN AND ACROSS WORKSHOP TOPICS, BY TEACHER CONCEPTUAL LEVEL (TCL)

TCL[2]	ACROSS SEL CATS[3]	WORKSHOP TOPICS[4] TOPIC 1	TOPIC 2	TOPIC 3	ACROSS TOPICS
High	0.203	0.125	0.212	0.074	0.167
Mod	0.232	0.344	0.487	0.145	0.325
Low	-0.055	-0.250	0.097	-0.516	-0.224

1. Change scores:
   post-workshop scores minus pre-workshop scores across all within selected category variables or across each group of workshop topic-related variables; based on a five point scale (1-5)

2. TCL groups:
   there is unavoidably some overlap between PCL and TCL groupings (See Appendix A)

3. Selected Categories:
   (1) Instructional Management
   (2) Room Arrangement
   (3) Rules and Procedures
   (5) Managing Pupil Behaviour
   (7) Inappropriate Pupil Behaviour
   (8) Classroom Climate

4. Workshop Topics:
   1 Managing the Room (Variables 2a, 2b; See Appendix B)
   2 Managing Pupil Behaviour (Variables 1j, 1k, 5c, 5d, 6c, 7c; See Appendix B)
   3 Managing Instruction (Variables 1a, 1d, 1h, 1i, 3b, 4b; See Appendix B)

TABLE 5: CHANGE IN COMPONENT RATING SCORES ACROSS TEACHERS, ACROSS SELECTED CATEGORIES, ACROSS AND WITHIN WORKSHOP TOPIC-RELATED VARIABLES, BY PAIRED CONCEPTUAL LEVELS OF PRINCIPALS AND TEACHERS

PAIRED CONCEPTUAL LEVEL[2]	CHANGE SCORES ACROSS TEACHERS[1] SELECTED CATEGORIES[3]	ACROSS WORK-SHOP TOPICS[4]	WITHIN WORKSHOP TOPIC 1	TOPIC 2	TOPIC 3
P,T:HM	0.335	0.274	0.406	0.444	0.137
P:L,T:LMH	-0.209	-0.273	0.333	-0.438	-0.425

1. Change scores:
   post-workshop scores minus pre-workshop scores across all within selected category variables or across each group of workshop topic-related variables; based on a five point scale (1-5)

2. Conceptual Level:
   P,T:HM = Conceptual levels (CL) of both principals and teachers were high or moderate (see Table 2)
   P:L,T:LMH = all principals were low CL; teachers were low or moderate or high (see Table 2)

3. Selected Categories:
   (1) Instructional Management
   (2) Room Arrangement
   (3) Rules and Procedures
   (5) Managing Pupil Behaviour
   (7) Inappropriate Pupil Behaviour
   (8) Classroom Climate

4. Across and within workshop topic-related variables do not include the change scores of teachers in the Control group

5. Workshop Topics:
   1 Managing the Room (Variables 2a, 2b; See Appendix B)
   2 Managing Pupil Behaviour (Variables 1j, 1k, 5c, 5d, 6c, 7c; See Appendix B)
   3 Managing Instruction (Variables 1a, 1d, 1h, 1i, 3b, 4b; See Appendix B)

TABLE 6: CHANGE IN COMPONENT RATING SCORES ACROSS TEACHERS, WITHIN AND ACROSS SELECTED CATEGORIES, AND WORKSHOP TOPICS, BY TEACHER EXPERIENCE

TEACHER EXPERIENCE	WITHIN SEL CATS[1] CAT	CHANGE SCORE[2]	ACROSS SEL CATS	WORKSHOP TOPICS[3] TOPIC 1	TOPIC 2	TOPIC 3	ACROSS TOPICS
Less (3-5 yrs)	1	0.058	-0.043	0.375	0.611	-0.150	0.279
	2	0.375					
	3	-0.091					
	5	-0.205					
	7	-0.400					
	8	0.500					
More (11-15 yrs)	1	-0.196	0.025	-0.083	0.349	-0.194	0.024
	2	-0.083					
	3	-0.094					
	5	0.060					
	7	0.179					
	8	0.458					
Very (>15 yrs)	1	0.248	0.298	0.321	0.389	0.195	0.302
	2	0.321					
	3	0.329					
	5	0.097					
	7	0.483					
	8	0.393					

1. Selected Categories:
   - (1) Instructional Management
   - (2) Room Arrangement
   - (3) Rules and Procedures
   - (5) Managing Pupil Behaviour
   - (7) Inappropriate Pupil Behaviour
   - (8) Classroom Climate

2. Change scores: post-workshop scores minus pre-workshop scores across all within selected category variables or across each group of workshop topic-related variables; based on a five point scale (1-5)

3. Workchop Topics:
   - 1 Managing the Room (Variables 2a, 2b; See Appendix B)
   - 2 Managing Pupil Behaviour (Variables 1j, 1k, 5c, 5d, 6c, 7c; See Appendix B)
   - 3 Managing Instruction (Variables 1a, 1d, 1h, 1i, 3b, 4b; See Appendix B)

TABLE 7: CHANGE IN COMPONENT RATING SCORES[1] ACROSS TEACHERS, ACROSS SELECTED CATEGORIES, AND WITHIN AND ACROSS WORKSHOP TOPICS, BY PRINCIPAL EXPERIENCE AS PRINCIPAL

PRINCIPAL EXPERIENCE	ACROSS SEL CATS[2]	WORKSHOP TOPICS[3] TOPIC 1	TOPIC 2	TOPIC 3	ACROSS TOPICS
Less (<5 yrs)	0.127	0.750	0.200	-0.007	0.314
More (6-10 yrs)	0.106	-0.050	0.209	-0.041	0.039
Very (>10 yrs)	0.223	-0.042	0.532	0.023	0.171

1. Change scores:
   post-workshop scores minus pre-workshop scores across all within selected category variables or across each group of workshop topic-related variables; based on a five point scale (1-5)

2. Selected Categories:
   (1) Instructional Management
   (2) Room Arrangement
   (3) Rules and Procedures
   (5) Managing Pupil Behaviour
   (7) Inappropriate Pupil Behaviour
   (8) Classroom Climate

3. Workshop Topics:
   1 Managing the Room (Variables 2a, 2b; See Appendix B)
   2 Managing Pupil Behaviour (Variables 1j, 1k, 5c, 5d, 6c, 7c; See Appendix B)
   3 Managing Instruction (Variables 1a, 1d, 1h, 1i, 3b, 4b; See Appendix B)

TABLE 8: CHANGE IN COMPONENT RATING SCORES[1] ACROSS TEACHERS, ACROSS SELECTED CATEGORIES, AND WITHIN AND ACROSS WORKSHOP TOPICS, BY TEACHER YEARS WITH PRESENT PRINCIPAL (TP)

TP	ACROSS SEL CATS[2]	WORKSHOP TOPICS[3] TOPIC 1	TOPIC 2	TOPIC 3	ACROSS TOPICS
Few (1 year)	-0.254	0.150	-0.257	-0.530	-0.212
Some (2 or 3 yrs)	0.307	0.250	0.483	0.298	0.344
More (4 years)	0.398	0.100	0.780	0.212	0.364

1. Change scores:
   post-workshop scores minus pre-workshop scores across all within selected category variables or across each group of workshop topic-related variables; based on a five point scale (1-5)

2. Selected Categories:
   (1) Instructional Management
   (2) Room Arrangement
   (3) Rules and Procedures
   (5) Managing Pupil Behaviour
   (7) Inappropriate Pupil Behaviour
   (8) Classroom Climate

3. Workshop Topics:
   1 Managing the Room (Variables 2a, 2b; See Appendix B)
   2 Managing Pupil Behaviour (Variables 1j, 1k, 5c, 5d, 6c, 7c; See Appendix B)
   3 Managing Instruction (Variables 1a, 1d, 1h, 1i, 3b, 4b; See Appendix B)

APPENDIX A

OVERLAPPING TEACHER MEMBERSHIP IN TRICHOTOMIZED GROUPINGS

TABLE A.1: OVERLAPPING TEACHER MEMBERSHIP AMONG TRICHOTOMIZED GROUPINGS OF CONCEPTUAL LEVEL AND DEMOGRAPHIC VARIABLES

GROUPING	PCL[1]	TCL[2]	TX[3]	PX[4]	TP[5]
High (CL) Very (TX,PX) More (TP)	02 13 14 15	01 02 05 11	01 02 04 05 08 11 14	04 06 09 11 12 14	01 02 12 13 14
Moderate (CL) More (TX,PX) Some (TP)	01 03 04 06 08 11	03 04 06 08 09 13 14 15	03 07 09 12 13 15	01 02 05 07 13	03 04 05 06 1[illegible]
Low (CL) Less (TX,PX) Few (TP)	05 07 09 10 12	07 10 12	06 10	03 08 10 15	07 08 09 10 15

1. PCL: Principal conceptual level
2. TCL: Teacher conceptual level
3. TX : Teacher experience
4. PX : Principal experience as principal
5. TP : Teacher years with present principal

TABLE A.2: NUMBER OF OVERLAPPING TEACHERS WITHIN EACH PAIR OF VARIABLES

GROUPING	PCL TCL[1]	TX PX[2]	TX TP[3]	PX TP
High (CL) Very (TX,PX) More (TP)	1 (02)[4]	3 (04,11, 14)	3 (01,02, 14)	2 (12,14)
Moderate (CL) More (TX,PX) Some (TP)	4 (03,04, 06,08)	2 (07,13)	1 (03)	1 (05)
Low (CL) Less (TX,PX) Few (TP)	3 (07,10,12)	1 (10)	1 (10)	3 (08,10, 15)

1. PCL, TCL: Principal, teacher conceptual level
2. TX, PX : Teacher experience, principal experience as principal
3. TP : Teacher years with present principal
4. Bracketed numbers are teacher ID numbers

APPENDIX B

COMPONENT RATING SCALE

COMPONENT RATINGS

Teacher # _____ School # _____ Observer # _____ Date _____ AM PM

# of Students _____ Grade _____

I. INSTRUCTIONAL MANAGEMENT

5 4 3 2 1	a.	Describes objectives clearly
5 4 3 2 1	b.	Variety of materials
5 4 3 2 1	c.	Materials are ready
5 4 3 2 1	d.	Clear directions
5 4 3 2 1	e.	Waits for attention
5 4 3 2 1	f.	Encourages analysis, builds reasoning skills
5 4 3 2 1	g.	Assignments or activities for different students
5 4 3 2 1	h.	Appropriate pacing of lesson
5 4 3 2 1	i.	Clear explanations and presentations
5 4 3 2 1	j.	Monitors student understanding
5 4 3 2 1	k.	Consistently enforces work standards

2. ROOM ARRANGEMENT

5 4 3 2 1	a.	Suitable traffic patterns
5 4 3 2 1	b.	Degree of visibility

3. RULES AND PROCEDURES

5 4 3 2 1	a.	Efficient administrative routines
5 4 3 2 1	b.	Appropriate general procedures
5 4 3 2 1	c.	Efficient small group procedures
5 4 3 2 1	d.	Suitable routines for assigning checking, and collecting work
5 4 3 2 1	*e.	Uses warm-up or wind-down activities

4 MEETING STUDENT CONCERNS

5 4 3 2 1	*a.	Student aggression
5 4 3 2 1	b.	Attention spans considered in lesson
5 4 3 2 1	*c.	Student success
5 4 3 2 1	d.	Activities related to student interests or backgrounds

5. MANAGING PUPIL BEHAVIOR

5 4 3 2 1	*a.	Rewards appropriate performance
5 4 3 2 1	b.	Signals appropriate behavior
5 4 3 2 1	c.	Consistency in managing behavior
5 4 3 2 1	d.	Effective monitoring

6. DISRUPTIVE PUPIL BEHAVIOR

5 4 3 2 1	*a.	Amount of disruption
5 4 3 2 1	*b.	Source of disruption
5 4 3 2 1	c.	Stops quickly
5 4 3 2 1	d.	Cites rules of procedures.
5 4 3 2 1	e.	Non-verbal contact
5 4 3 2 1	f.	Desist statement
5 4 3 2 1	g.	Punishment, criticism
5 4 3 2 1	h.	Ignores

7. INAPPROPRIATE STUDENT BEHAVIOR

5 4 3 2 1	a.	Amount
5 4 3 2 1	*b.	Source
5 4 3 2 1	c.	Stops quickly
5 4 3 2 1	d.	Cites rules or procedures
5 4 3 2 1	e.	Non-verbal contact
5 4 3 2 1	f.	Desist statement
5 4 3 2 1	g.	Punishment, criticism
5 4 3 2 1	h.	Ignores

8. CLASSROOM CLIMATE

5 4 3 2 1	a.	Task-oriented focus
5 4 3 2 1	b.	Relaxed, pleasant atmosphere

9. MISCELLANEOUS

5 4 3 2 1	a.	Distracting mannerisms
5 4 3 2 1	b.	Listening skills
5 4 3 2 1	c.	Expresses feelings
5 4 3 2 1	*d.	Externally imposed interruptions
5 4 3 2 1	e.	Manages interruptions