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Effect of Self-Management on Preservice Teachers' Performance During a Field Experience in Physical Education

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The effects of a self-management program on preservice teachers' performance were examined. Intervention included a self-instructional module for self-management as well as practice for implementing self-management in teaching. During a field experience in physical education, pupil behaviors in the classes of four subjects were coded by trained observers using the Academic Learning Time-Physical Education Observation System (ALT-PE). Each teacher's verbal behavior was audiotaped and coded using the event recording method. The influence of the cooperating teacher and the supervisor was controlled in order to assess self-management efficacy. Results indicated that teachers can acquire self-management skills as they do other teaching skills during their preservice education. A multiple-baseline design across behaviors and a reversal design showed that all subjects changed their teaching behaviors effectively and met the field experience criteria.

"What behavior change agent can go with the student to every necessary lesson, at all times, to prompt and reinforce every desirable form of the behavior called for by the curriculum? The student's own 'self' can always meet these specifications" (Baer & Fowler, 1984, p. 148). Self-control, or self-management as it will be termed in this paper, is a valued skill in our society. Dewey (1939) suggested that "the ideal aim of education is the creation of self-control" (p. 75). Mahoney and Thoresen (1974), in their book *Self-Control: Power to the Person,* emphasized the importance of self-management:

> We value self-control because of its role in the survival of our society and culture. One measure of a "civilized" society is the degree to which its inhabitants direct, maintain, and coordinate their activities without external coercion. If more individuals could develop effective self-management skills, the need for professional helpers and the number of passive "you help me" patients might be sharply diminished. (p. 1)

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Students who acquire self-management skills will be able to maintain appropriate behavior and change it when necessary, even when their teachers or parents are not directly involved. The more that students are able to manage their own behavior, the less time teachers need to spend on management related behaviors and the more time they can spend on improving the quality of instruction. Although self-management is a valued skill in society, it has rarely been addressed directly by the educational system. Lovitt (1973) and Stephens (1978) have noted the educational paradox: While a major goal of the educational system is the creation of independence and self-reliance, self-management skills are not systematically programmed in this system. In order to achieve the ideal goal of creating self-reliance and independence in individuals, teachers themselves should possess and model those skills.

Recent nationwide efforts for improving the American educational system emphasize self-management as an essential characteristic of teachers. Two major reforms (Carnegie Commission, 1986; Holmes Group, 1986) that have already affected teacher education in America portray a coherent image of an independent and self-directive teacher. Teachers are expected to have the ability to learn at all times, knowing how to figure out what they need to know. They should be able to act independently, think for themselves, and render critical judgment (Carnegie Commission, 1986). The Holmes Group (1986) condemn the normative "tell me what to do" attitude among teachers and call for intellectual independence. Independent teachers should possess analytic skills and be able to observe and evaluate their own performance as well as that of their students.

While lamenting the drawbacks of the past, both reforms underline the vital role of teacher education in the acquisition stage of the desired teaching skills. Imparting self-management skills during preservice teacher education can improve the process of preparing an effective teacher who is capable of meeting the new challenges posed by the reforms. Siedentop (1982) has suggested that teachers in field settings can and will change their behaviors, particularly when they have a strong reason to believe the suggested alternation will make them more effective or efficient. As further explained by Skinner (1969, pp. 121-122), "The behavior of a person who has calculated his chances, compared alternatives, or considered the consequences of a move is different from, and usually more effective than, the behavior of one who has merely been exposed to the unanalyzed contingencies."

Furthermore, teaching skills acquired by students during internships do not automatically transfer to and maintain themselves in the real world of teaching (Siedentop, 1983). In such cases, self-management could be a useful strategy for understanding, controlling, and maintaining teaching behaviors. Skinner (1953) suggested that an individual can learn to influence the variables of which his/her behavior is a function. He stated that "an adequate explanation of self-control should make it possible to teach relevant techniques as easily as any other technical repertoire" (p. 241). Hall (1976) supported this notion and demonstrated that teachers can acquire self-management skills as they do any other teaching skill during their preservice education. Because the availability of university supervisors in field settings is limited and expensive, self-management by their interns may improve the supervisory process. Acquiring self-management tools will enable interns to maintain and refine their own teaching skills as the independent teachers the new reforms call for.

The purpose of this study was to determine whether physical education majors could manage their own teaching behavior during a high school field experience. Self-management was defined as "the personal and systematic application of behavior change strategies that result in the desired modification of one's own behavior" (Cooper, Heron, & Heward, 1987, p. 517).

Method

The basis of the self-management program was shifting the major responsibility for the supervisory process from supervisor and cooperating teacher to interns. Interns set their own goals, monitored their progress, and initiated interaction with peers, cooperating teacher, supervisor, and so forth when necessary and/or desired.

Subjects and Setting

The subjects for this study were 39 undergraduates who were majoring in physical education and who were enrolled in secondary methods courses (secondary core) during winter quarter 1987. The secondary core focused on physical education for high school youth. It included a methods course dealing with curriculum and instruction, a curriculum clinical experience conducted at the university, a microteaching experience in a middle school, and a field experience in an urban or suburban middle or high school in central Ohio. During the field experience four student teachers were assigned to each school and taught the same class for 14 days. Class size ranged from 18 to 24 pupils. Student teachers were supervised by cooperating teachers and university supervisors, including the researcher.

The 19 women and 20 men ranged from 21 to 43 years of age. They all took the same courses during the quarter but were divided into three groups for the study purposes:

1. SMP (self-management program)—Four of the 39 students volunteered to serve as experimental subjects and implemented the self-management program during the field experience. In addition to carrying the course load, these subjects were involved in tasks related to the SMP (see self-management training). SMP subjects were evaluated by the researcher and the cooperating teacher.
2. SSC (standard supervision control)—These 4 subjects implemented the university standard supervision program, supervised by the researcher and the cooperating teacher, and taught at the same setting with the SMP subjects.
3. SSP (standard supervision program)—Feedback and suggestions for improvement were provided by university supervisors and/or cooperating teachers in a conference held after each observation. The 31 SSP subjects taught at different (i.e., not at the same schools with SMP and SSC subjects) yet similar schools.

Each SSC subject was paired up with one of the four SMP subjects. Although teaching different groups of pupils, each pair taught the same content to the same age group and used the same facilities and equipment. Pairs 1 and 2 taught at

School A while Pairs 3 and 4 taught at School B. The only way that SSC subjects could interact with SMP subjects on issues related to their teaching was if the interaction was initiated by SMP subjects.

Self-Management Training

The instructional package and training for the SMP were presented during the second through seventh weeks of the quarter. During this period subjects had completed a self-instructional module on goal setting, environmental planning, self-recording, and self-reinforcement/punishment. The SMP subjects practiced these techniques during a microteaching experience and practiced self-recording at the department's audiovisual laboratory. In addition there was a weekly 1-hour conference including the experimenter and the four SMP subjects. In these conferences the participants shared ideas and impressions concerning the implementation of the self-management program.

Controlling the Supervisor/Cooperating Teacher's Influence

In order to better assess the efficacy of the SMP, the influence of other parties involved in the supervision process was controlled, allowing SMP subjects to set their own goals, monitor their progress, and change their own behavior. Any interaction between the supervisor/cooperating teacher and the SMP subjects was initiated by the subjects. The supervisor or the cooperating teacher intervened only if the subject's behavior could endanger the pupils' health, was unethical, or had proven to be ineffective over three consecutive lessons. Each case of intervention was documented in a conference log kept by the supervisor and the cooperating teacher, and by the subjects in their teaching log.

The Self-Management Sequence

The SM sequence was based on clinical supervision (Anderson & Krajewski, 1980; Garman, 1982; Goldhammer, 1969) that was initiated and implemented by the supervisee. The five stages in the clinical sequence of supervision were modified for self-management as follows:

1. Preobservation—Set goal, specify and define the target teaching behaviors and pupils' behaviors that need change; select observational recording strategy (e.g., mini tape recorder, golf counter); select SM technique (e.g., self-reinforcement, environmental planning); specify self-contract and consequence.
2. Observation—Self-record or have peers record the target behaviors; implement the self-management strategy.
3. Analysis and strategy—Graph data; analyze data; evaluate performance; specify suggestions for improvement.
4. Conference—Consult peers, cooperating teacher, and supervisor based on analysis and strategy.
5. Postconference analysis—Self-evaluation of the sequence (reflection); completion of the contract (consequence).

The self-management sequence was adapted and designed as a lesson plan for the use of the SMP subjects. The SM plan was presented on one sheet and

included all stages of the SM sequence as well as two blank graphs for plotting data on target behaviors selected by the subjects. The subjects used it as an analysis and intervention tool for each lesson taught during the field experience.

Target Behaviors

During the sixth week of the quarter the experimenter gave the SMP subjects a list of teacher behaviors and pupil behaviors that were subject to change. These behaviors were derived from the objectives of the secondary core and were observable, measurable, and precisely defined. In addition, subjects were free to choose any target behavior they believed could be essential for their progress. In each phase of the field experience, subjects implemented the SMP in order to change the selected target behavior. A main goal of the SMP was subjects' own selection of target behaviors with no guidance from the supervisor and the cooperating teacher. It was the subjects' responsibility to decide on the quantity of target behavior to be treated and on the schedule for initiating and terminating each intervention. Content influence on teacher and pupil behaviors was controlled because each subject taught only one unit throughout the field experience and both SMP and SSC subjects taught the same unit.

The following teacher behaviors (rate per 10 minutes) were the potential dependent variables available to the subjects' selection: (a) the use of pupils' names in behavioral interactions, (b) the use of positive and negative behavioral interactions, (c) the use of general and specific feedback, or (d) the use of modeling (demonstration). Pupil behaviors for selection were percentage of total intervals in which pupils were engaged in management, transition, waiting, knowledge, activity, and off-task.

Observation System

All lessons taught by SMP subjects during the field experience were recorded by trained observers. The observation instrument used in this study was based on the standard ALT-PE coding sheet used for supervision in the department (Wilkinson & Taggart, 1984). It had been modified by the experimenter to reflect the major goals of the secondary core and included event recording of teacher behaviors. Lessons taught by SSC and SSP subjects were recorded by their supervisors at least twice a week.

Research Design, Interpretation, and Analysis of Data

A multiple-baseline design across behaviors and a reversal design (Baer, Wolf, & Risley, 1968) were used in this study to analyze the functional relationships between the treatment package and changes in dependent variables.

Visual inspection of graphic data determined whether a meaningful change in the dependent variables (i.e., target behaviors) had occurred and to what extent this change could be attributed to the manipulation of the independent variable, SMP. In analyzing the data, the following characteristics of behavioral data were considered: (a) the extent and type of variability or range in data point values, (b) the level change within the same condition, (c) the level change between baseline and intervention phases, and (d) the slope or trend direction of the data path across time. Although there are no formal rules for inspecting data, the confidence in intervention effectiveness is greater when the effect is replicated a number of

times, when there are fewer overlapping points between baseline and intervention phases, and when the effect is abrupt and observed immediately after the introduction of intervention.

Twelve optional dependent variables (i.e., six pupil behaviors and six teacher behaviors) and other behaviors selected by the subjects were measured consecutively for each SMP subject throughout the 14-day field experience. It should be noted that Subjects (SMP and SSC) 1 and 2 taught two 30-minute lessons a day, with a planning period in between, while Subjects 3 and 4 taught one 60-minute lesson a day. Six lessons of Subjects 1 and 2 were not included in the research design because the gym was not available (Day 7), and some lessons were devoted to a tournament with teachers' participation (last 2 days).

SMP subjects were encouraged to intervene on one or two variables at a time. However, they were responsible for selecting the target behaviors and initiating and terminating the intervention. Consequently, in some cases intervention was applied by the subjects when baseline showed a slight therapeutic (i.e., improving) trend, or intervention was terminated in a countertherapeutic trend. The multiple baseline was designed by the experimenter after data collection (i.e., tiers for the multiple-baseline design were determined from the data) to eliminate any external influence on the subjects.

During the field experience the SMP subjects intervened on three or four major behaviors. Data collected on the subjects' target behaviors were plotted graphically for communicating and analyzing the various aspects of behavior change. Other behaviors treated briefly (i.e., less than two consecutive lessons) were not included in the research design. Visual analysis of bar graphs was also used to compare the teaching performance of SMP and SSC subjects.

Reliability

The scored-interval method (Hawkins & Dotson, 1975) for calculating interobserver agreement in interval recording and the gross method (Tawney & Gast, 1984) for event recording were used in this study. Two or three interobserver agreement checks were conducted on each observer during the 3-week field experience. All interobserver agreement percentages were within the acceptable standards of 80–100% for the ALT-PE system (Siedentop, 1983).

Results

Subject 1

The effects of the intervention on pupil behaviors for Subject 1 are presented in Figure 1. For management (Tier 1), the self-management intervention resulted in a therapeutic level change between conditions of −14% (from 27.5 to 13.5%) of intervals and by the lack of overlap in data points. A stable decelerating-therapeutic trend was maintained during intervention with a more variable trend during maintenance (i.e., graphing only). The data for off-task behavior provide a good replication of effect, as indicated by the level change between conditions (from 7 to 0%), with no overlap of data points. This data series is convincing because the baseline trend, as evidenced by the last six data points, showed high stability with a slight countertherapeutic trend prior to intervention. Furthermore, upon intervention there was an abrupt change and data stabilized at a 0% level. The introduction of intervention to off-task behavior

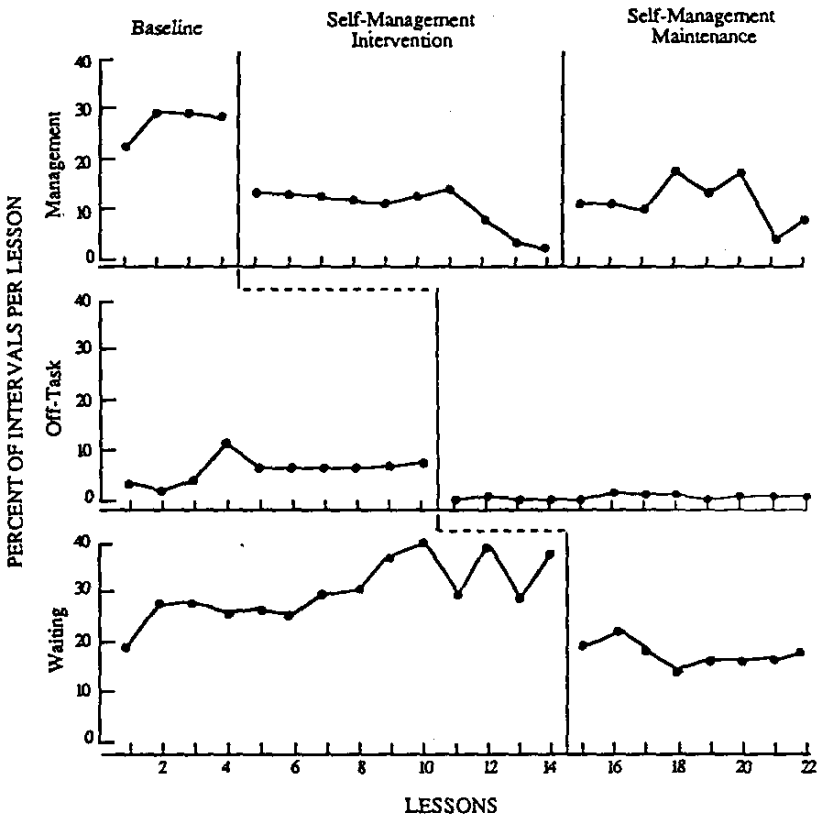

Figure 1 — A multiple-baseline-across-behaviors design showing different pupil behaviors for Subject 1.

seemed to strengthen the magnitude of change in management (Lessons 12, 13, and 14). In order to reduce off-task behavior, the subject minimized activities that were unrelated to the lesson, thus reducing management behavior. The effect of intervention is replicated again for waiting. Level change between conditions was −18% (from 38 to 20%) of intervals and there was no overlap of data points between conditions, except for Lesson 1.

Subject 2

The effects of the intervention on teacher behaviors for Subject 2 are presented in Figure 2. The rate of "OK's" (Tier 1) was treated by Subject 2 from the first lesson of the field experience, therefore no baseline data were taken. The presentation of intervention was followed by a stable and clear decelerating-therapeutic trend that lasted until Lesson 6. Level change at this period was −15 (from 20 to 5 OK's per 10 minutes). Lessons 7 and 8 and the maintenance condi-

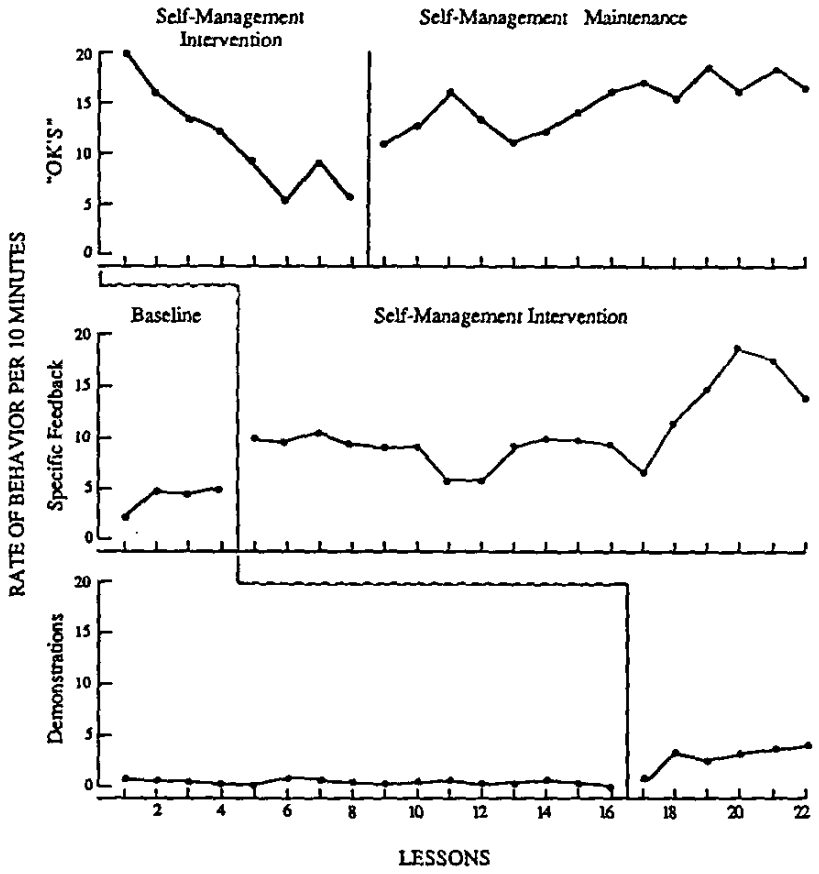

Figure 2 — A multiple-baseline-across-behaviors design showing different teacher behaviors for Subject 2.

tion yielded more variability in data. The termination of intervention resulted in level change (+6) between conditions, followed by a gradual accelerating-countertherapeutic trend. Although no baseline data were taken for the use of OK's, the following may attribute the change in OK's to the SMP: (a) a noticeable improvement had occurred during intervention, and (b) when intervention had been withdrawn, a countertherapeutic change in level occurred, followed by a decaying trend. Subject 2 had struggled for a while, trying to increase the rate of feedback statements. This may be the reason for neglecting to maintain a low rate of OK's.

For specific feedbacks (Tier 2), the SMP resulted in a positive level change of +5 between conditions. Although there was no overlap in scores between baseline and intervention, three trends may be identified during intervention. First, for Lessons 5–17, data had stabilized around a rate of 10 except for Lessons 11,

12, and 17. The second trend, Lessons 18–20, was significantly accelerating-therapeutic. A decrease in the rate of feedback statements was evidenced in the last two lessons, 21 and 22. The variability in trends during the intervention on specific feedbacks reflected the subject's efforts to implement the most effective SM technique. The abrupt change in lessons 18–20 correlated with the subject's report on finding a useful combination of techniques. The decrease in the last two lessons may be explained by the game-oriented nature of these two lessons, which usually yields fewer feedback statements than does a drill-oriented lesson. A replication of effect was provided for demonstrations (Tier 3). A stable zero-celerating baseline trend of 0–1 demonstration per 10 minutes was followed by a gradual accelerating-therapeutic intervention trend of 4 per 10 minutes. There was no overlap of scores between the two conditions.

Subject 3

Figure 3 describes three teacher behaviors treated by Subject 3. Baseline for names (Tier 1) showed a slight countertherapeutic trend. For OK's (Tier 2)

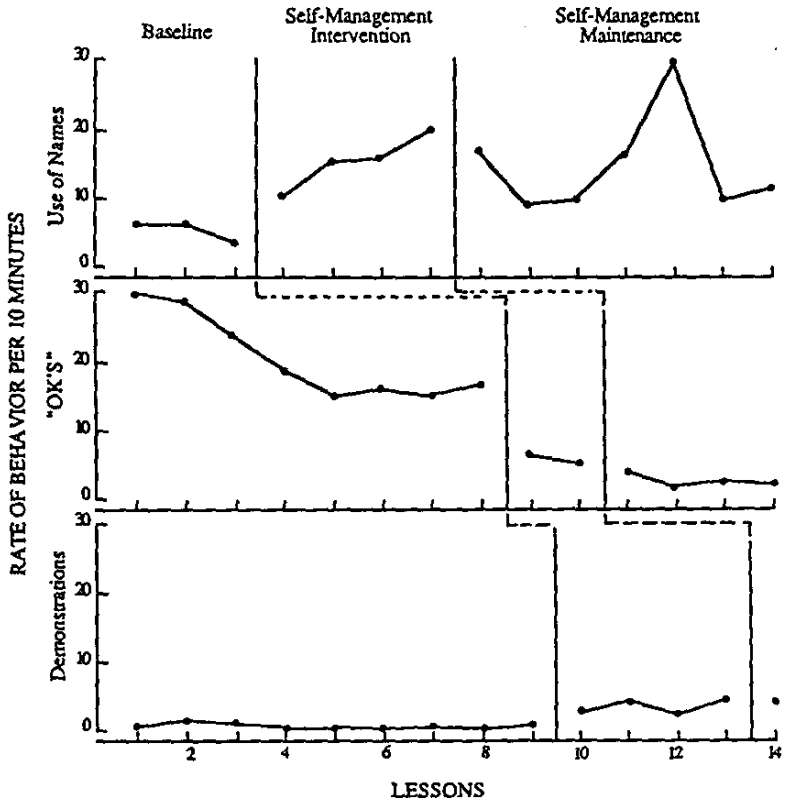

Figure 3 — A multiple-baseline-across-behaviors design showing different teacher behaviors for Subject 3.

the rate per 10 minutes had stabilized on an average of 17 following an initial therapeutic trend, whereas for demonstrations (Tier 3), the baseline trend was zero-celerating. Presentation of the SMP resulted in a positive effect over baseline, as evidenced by level change between conditions of +6 in names, −10 in OK's, and +2 in demonstrations. There was no overlap in scores between baseline and intervention conditions in all three behaviors. A stable therapeutic trend was maintained during intervention until intervention was terminated. During maintenance the trend for names was variable, with the lowest (9–10 names) data points overlapping the lowest intervention point and the highest point (29) exceeding the highest intervention point (20). For OK's and demonstrations, maintenance followed the stable intervention trend (it should be noted that demonstrations maintenance included only one data point). The low rate of OK's for SMP Subject 3 during maintenance was impressive, especially when compared to the unsuccessful maintenance for SMP Subject 2. The difference between the two subjects was probably due to the SM technique used. Subject 3 used his pupils as reminders, a behavior that had generalized to the maintenance condition because it was very reinforcing to the pupils. Subject 2 had not used this technique and therefore had more difficulties in maintenance.

Reversal Design for Feedback Provision. The analysis of data on specific feedback provision for Subject 3 yielded an interesting outcome. According to his SM plan, Subject 3 decided to intervene upon the rate of specific feedbacks only three times, in Lessons 2, 8, and 14. Although this kind of nonconsecutive intervention was not commensurate with the SMP guidelines, analysis of the graphed data (see Figure 4) showed a strong effect of the SMP. Each brief presentation of intervention resulted in an abrupt increase in the rate of specific feedbacks. The increase was +10 in Lesson 2, +11 in Lesson 8, and +3 in Lesson

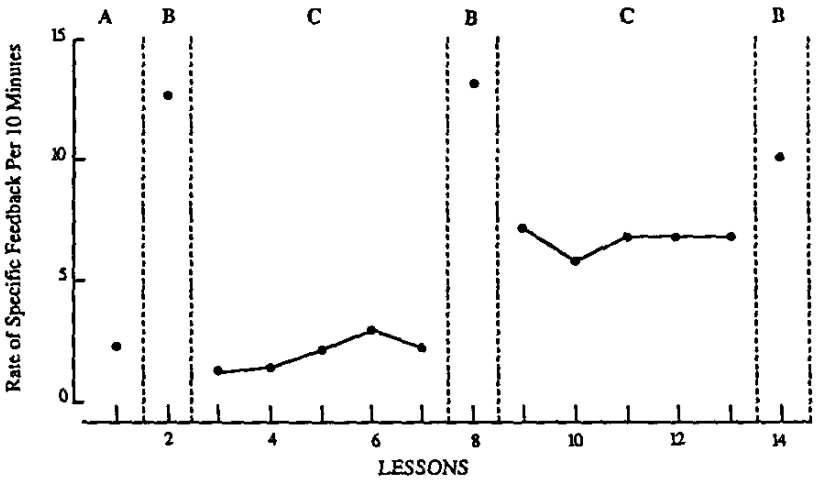

Figure 4 — Reversal design showing the rate of specific feedback per 10 minutes for Subject 3. A=baseline, B=intervention on specific feedbacks, C=intervention on other teacher's behaviors.

14. The withdrawal of intervention resulted in an abrupt decrease (−11 in Lesson 3 and −5 in Lesson 9). Each brief intervention was followed by a stable 5-data-point trend. After the first intervention the trend was slightly accelerating-therapeutic (Lessons 3–7) and ranged between one and a half to three feedback statements per 10 minutes. After the second intervention the trend had stabilized on an average level of seven feedback statements per 10 minutes.

Although not maintained, these three intervention probes by Subject 3 showed a powerful effect on the rate of specific feedback statements. Furthermore, after the second intervention, in Lesson 8, feedback had stabilized on a much higher level (+5) than before. This increase may be attributed to the brief presentation of the SMP. It may be assumed that if intervention was applied for three or four consecutive lessons, the feedback rate could have stabilized on a higher level.

Subject 4

Effects of the SMP on teacher behaviors and percent of intervals in activity for Subject 4 are presented in Figure 5. It should be noted that for teacher behaviors the scale of the vertical axis represents rate per 10 minutes whereas for activity it represents percent of intervals. The multiple-baseline design demonstrates the positive effect of the SMP. Level change between baseline and intervention was +10 in names (note that only one data point is presented for baseline), +14% in activity, −6 in OK's, and +3 in demonstrations. Each presentation of the SMP was followed by a therapeutic change in the target behavior while the other untreated baselines remain stable and zero-celerating. During maintenance, trends in names and activity had stabilized on a level overlapping with intervention level. A countertherapeutic change was evident in OK's and demonstrations.

Managerial Time in Subjects' Lessons

Effective management was the major focus of the secondary core field experience. Managerial time in this study referred to the cumulative time (measured by interval recording) during which pupils were engaged in nonacademic behaviors including management, waiting, transition, and off-task. Instructional time included activity and knowledge (for definitions, see Wilkinson & Taggart, 1984).

The average managerial time per lesson was calculated for each SMP and SSC subject during the first and last weeks of the field experience (first and last days were not considered). All subjects had reduced managerial time in their lessons from Week 1 and Week 3 (see Figure 6). It should be noted that gradual decrease of managerial time was observed during Week 2. Pair 1 had a −33% reduction relative to the first week average for the SMP subject and −20% for the SSC subject. Pair 2 had a reduction of −15% for both subjects. Pair 3 had a reduction of −34% for the SMP subject and −27% for the SSC subject. Pair 4 had a reduction of −26% for the SMP subject and −15% for the SSC subject. A comparison of managerial time reduction for each pair indicates that when there were differences, they were all in favor (i.e., greater reduction) of the SMP subject.

Toward the end of the field experience, according to the field experience objectives, all subjects had reached an acceptable managerial/instructional time ratio of approximately 50/50 or better. Both subjects in Pair 1 (volleyball unit)

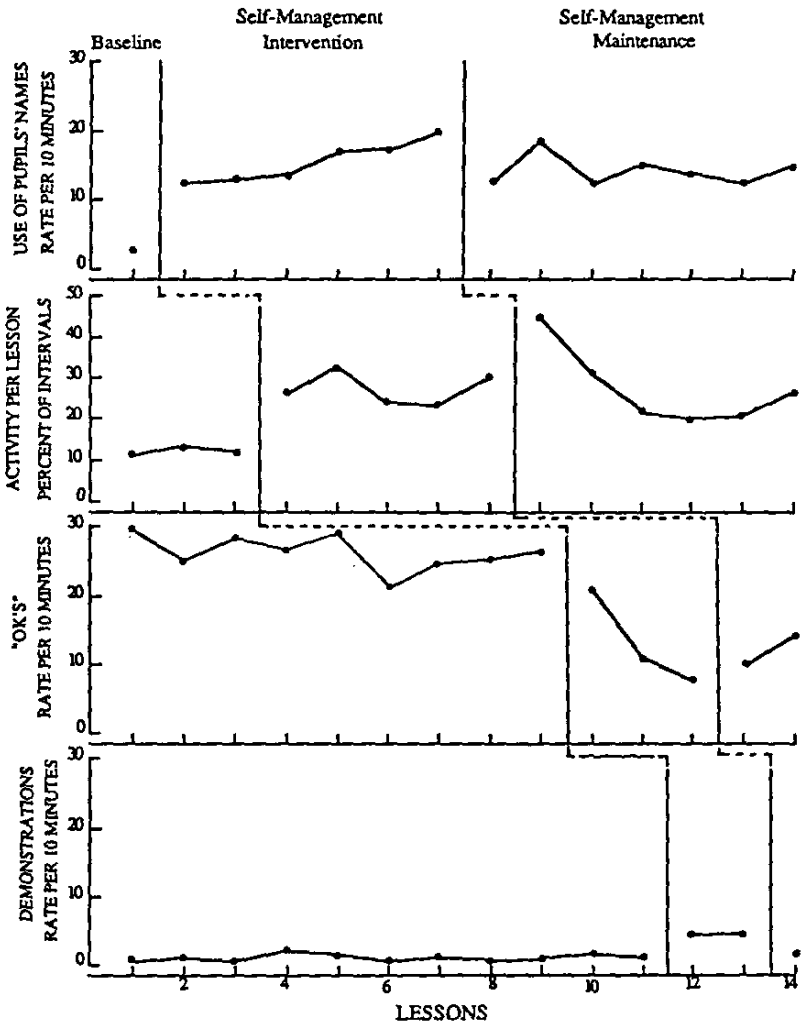

Figure 5 — A multiple-baseline-across-behaviors design showing different teacher behaviors (i.e., use of names, use of OK's, and demonstrations) and pupil behaviors (i.e., activity) for Subject 4.

had reached a 48/52 ratio. In Pair 2 (volleyball) both subjects had a 53/47 ratio. In Pair 3 (conditioning) the SMP subject had a ratio of 27/73 while the ratio of the control subject averaged 44/56. In Pair 4 (gymnastics) the SMP subject had a 42/58 ratio while the control subject had a ratio of 52/48. Ratio differences between pairs can be explained by the unit taught. In volleyball and gymnastics

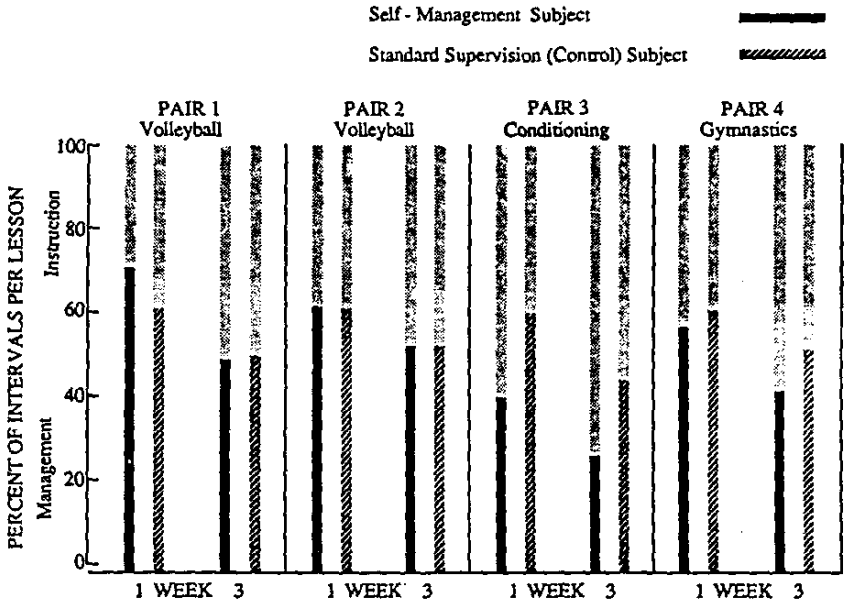

Figure 6 — The average managerial/instructional time ratio for SMP and SSC subjects during the first and last weeks of the field experience.

(Pairs 1 and 2), managerial time was relatively high because of the drills involved in volleyball and the safety conditions in gymnastics. In conditioning (Pair 3), less time was spent on transition and waiting, leaving more time for instruction. Managerial/instructional ratio was similar among the SMP and the parallel SSC subjects in Pairs 1 and 2. In Pairs 3 and 4, SMP subjects had reached a better average ratio during the third week of the field experience.

Specific Feedback Provision in Subjects' Lessons

Provision of specific feedback was a major instructional component of the secondary core field experience. Average rates of specific feedback statements provided by the SMP and SSC subjects in Weeks 1 and 3 are displayed in Figure 7. Figure 7 indicates that all subjects, except SMP 4 who had reached a high level in Week 1, had increased the rate of specific feedback statements from Week 1 to Week 3. A gradual increase was observed in Week 2. In all four pairs, the SMP subject had reached a higher rate of specific feedback statements than the SSC subject during the third week of the field experience; in Pair 1 it was 17 per 10 minutes for the SMP subject and 10 for the SSC subject; in Pair 2 it was 16 compared to 12; in Pair 3 it was 9 compared to 4; and in Pair 4 it was 10 compared to 7.

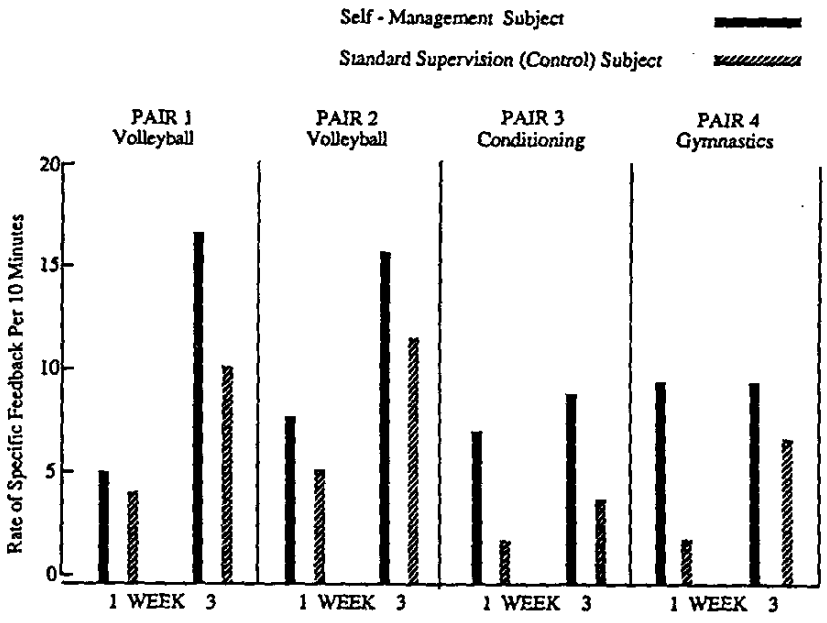

Figure 7 — The average rate of specific feedback statements for SMP and SSC subjects during the first and last weeks of the field experience.

Summary and Discussion

Analysis of data for all four SMP subjects indicated that self-management had a positive effect on changing teacher and pupil behaviors. In the multiple-baseline design the positive effect was evidenced by a level change between conditions, especially baseline and intervention, and by the lack of overlap in scores. In most behaviors a stable therapeutic trend was maintained during intervention. Experimental control was demonstrated for all 4 subjects in that each time they applied the SMP, change occurred in the treated behavior but not in the untreated behaviors. Experimental control was also demonstrated in a reversal design for Subject 3. In this design the introduction of the SMP resulted in an abrupt improvement in the target behavior, and intervention withdrawal was followed by an abrupt deterioration.

Both sets of subjects were held accountable for their performance during the field experience. A letter grade was assigned to all subjects contingent upon their achieving specified objectives. While the SSC subjects received ongoing feedback from their supervisor and cooperating teacher, SMP subjects were given only a blank evaluation form prior to the field experience to familiarize them with the evaluation criteria. Comparing the performance of SMP subjects to that of the parallel SSC subjects showed that the change produced by the SMP was at least equal to that produced by the SSC, both in reducing managerial time and

in increasing feedback statements. Moreover, all SMP subjects had a higher rate of specific feedback during the first week of the field experience. This may be explained by the SMP subjects' awareness of behavior change as a result of participating in the SMP. Taking the responsibility for setting their own goals and selecting their target behaviors could have contributed to this early intervention. In contrast, the SSC subjects were more dependent on the cooperating teacher and supervisor's feedback and therefore dealt with feedback statements later during the field experience. Continuous self-recording enabled the SMP subjects to monitor and assess their progress in attaining the required goals. The immediate feedback obtained from the daily analysis helped the subjects determine where to focus their attention in selecting target behaviors for intervention.

All four cooperating teachers in the experimental settings indicated that the change in teaching performance produced by each SMP subject was more impressive than the change produced by his/her parallel SSC subject. This subjective evaluation was supported by comparing the data of SMP and SSC subjects. Goals chosen by the subjects correlated with goals specified by the supervisors for both sets of subjects. Analysis of lesson plans and anecdotal comments on each lesson indicated that goals set by SMP subjects were appropriate and reflected the events in the field. In a written and oral evaluation of the SMP, all subjects indicated that the program was very effective in improving their teaching performance and enhancing their confidence as preservice and future teachers.

From the data presented above, one may conclude that acquiring self-management skills will enable teachers to effectively change the performance of their pupils as well as their own. However, it should be noted that SMP subjects participated in a highly structured course sequence focusing on the development of teaching skills. Self-management skills were acquired as any other teaching skill during the acquisition stage (i.e., teaching skills course) and played a major role in improving proficiency during the practice stage (i.e., field experience). The ability to manage their own behavior without the influence of cooperating teachers or supervisors was a powerful reinforcer for the SMP subjects. Therefore it may be assumed that these individuals are likely to use self-management in the future as inservice teachers.

Conclusions and Recommendations

The ability to manage the important events in life is probably among the most important skills a person can possess. Self-management and self-direction should be a major goal of teacher education. Teachers should eventually be in control of their own professional development. The external mechanisms for specific accountability in teaching are weak and in most cases irrelevant to pupils' learning. Therefore teachers should acquire internal accountability mechanisms, namely self-management skills, which should be taught in the teacher preparation programs as one other teaching skill.

The typical supervision process usually emphasizes the supervisor and the cooperating teacher as the main change agents (Pohland & Cross, 1982). However, the systematic supervision research program at Ohio State University (Siedentop, 1981) showed that each of the parties involved (i.e., intern, peer, cooperating teacher, and supervisor) can serve as an effective change agent in the supervision process. This study supported the notion that interns can play an important role in changing their own teaching behavior. Using others as in-

formation sources was an essential component of the SMP, and subjects in this study used specialists such as supervisors, cooperating teachers, and coaches in this manner. They also used their pupils and peers as reminders and supporters. It is suggested that the major responsibility for the supervision process be shifted from supervisors and cooperating teachers to interns. According to this concept, the supervisor would play an important role in teaching interns the pedagogical skills. Both the supervisors and the cooperating teacher would help interns implement these skills during a sequence of field experiences in schools. However, setting teaching goals and using the supervisor and the cooperating teacher as information and feedback sources during the field experience should be initiated by the interns. Acquiring self-management skills can also enable interns to serve as feedback sources for their peers. Using planning, recording, and evaluating skills, interns can provide valuable information to peers, teaching with them at the same school.

The encouraging conclusions of this study should lead to further studies integrating self-management into teacher education programs. The following procedures could be applied to promote student independence during teacher education:

1. Offer a course presenting self-management rationale and techniques.
2. Have students practice self-management techniques to improve everyday behaviors.
3. Have students practice self-management techniques to improve teaching behaviors during initial experiences (e.g., peer teaching, microteaching).
4. Have students play a major role in setting their own goals and in analyzing and improving their performance.
5. Let students play a major role in planning and evaluating their student teaching experience.
6. Let students take an active part in their own grading.

Implanting such self-management procedures into a well designed physical education teacher education (PETE) program while maintaining a reasonable balance between student and supervisor responsibilities is a challenge that is attainable. Adding self-management to our existing programs could help in the overall effort to improve PETE and to meet the challenge of preparing independent teachers who are capable of self-growth.

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