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ABSTRACT

The University of Washington's Teacher Incentives Project (TIPS) investigated the effects of training and incentives on experienced elementary and secondary teachers. All participants were teachers who had experience working with student teachers in their classrooms. Asked to name the type of inservice they would like to receive, the teachers expressed a strong preference for stress management. This was then identified as an incentive, and one group (Group A) of teachers attended stress management workshops which also included training in effective teaching skills identified in the University of Washington Assessment System (UWTAS). An overview of the UWTAS and a workshop on use of the system in supervising student teachers were included in the training for both Group A and Group B. Training in the UWTAS was expected to equip these teachers to take over evaluation of student teachers and improve the quality of supervision they provide. A description is presented of the development of workshop topics and formats, and the instruments used to measure the reactions of the participants to the workshops. In discussing the results it is pointed out the conclusions drawn can be only tentative because of the small number of teachers involved in the two groups (13). It is noted that although research tends to point to greater effectiveness of nonsalaried incentives, the teachers in this project mentioned monetary incentives more often than nonmonetary ones, especially if tuition reductions are included under monetary incentives. (JD)

# THE EFFECTS OF NON-SALARIED INCENTIVES ON TEACHER PERFORMANCE AND STUDENT OUTCOMES

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## INTRODUCTION

During the last few years, the quality of teaching in the public schools has come under increasing public scrutiny, discussion, and criticism. Often, these public perceptions are rooted in unrealistic expectations that the schools will "do it all," and all alone. As Rosenholtz (1985) described the situatic , "Never have so many demands been placed on teachers with so little support and so few rewards" (p. 340).

One serious and much-discussed result has been an alarming rise in the rate of teacher burnout, or, as Kaiser (1981) has titled it, "Motivation deprivation: No reason to stay." Schools are finding it increasingly difficult to attract and keep the talented teachers they so urgently need. Rosenholtz points to three specific problems:

1) Relatively few students of higher academic ability are choosing to enter the field.

2) The most talented teachers are statistically the most likely to leave the profession.

3) There is a serious need to upgrade the skills of older teachers (who make up a much larger percentage of the workforce than in the past).

These problems, and the public debate about them, have generated a host of proposals from politicians, parents, school districts, universities, and teachers themselves. Many of them concern the need to provide incentives for teachers to remain in the profession and to strive for continued professional development.

Although a number of the proposals call for monetary incentives, such as merit pay or across-the-board salary increases, research literature strongly suggests that nonsalaried incentives (alone, or in combination with pay increases) are more appropriate and more effective. In surveys of teachers, researchers such as Bishop (1977), Glenn and McLean (1981), and Lortie, (1975) have found that intrinsic rewards - related to students' achievement and growth - are mentioned far more often than salary as the most satisfying aspect of their work. Heath (1981) found that even when external rewards, such as salaries, were increased, teachers' morale remained low.

Kaiser (1981) identified four particularly important intrinsic motivations: sense of achievement, recognition for a job well done, responsibility for performing an interesting job, and a chance for advancement in the career. Kremer and Hofman's (1981) study of teachers who left the profession yielded complementary results. They found that the reasons most often

given for leaving included burnout, lack of encouragement for initiative, low professional status, lack of autonomy, and lack of advancement opportunities. Farber (1982) found the lack of advancement opportunities to be one of the three most often named causes of teacher stress.

Kaiser (1981), Weller (1982), Dunathon and Saluzzi (1980), and others have cited Maslow's (1954) hierarchy of needs as a starting point for discussion of teacher incentives. According to Maslow, the "lower level", survival needs must be satisfied first; but once met, they cease to motivate. Higher level needs for ego and self-fulfillment then become dominant.

Based on this theory, Herzberg (1974) explains that the factors which prevent teacher burnout are <u>not</u> the same as those which satisfy and motivate teachers. To the first category, he applies the term "hygiene." This includes factors such as salary, fringe benefits, a good working environment and good human relationships. The factors which satisfy and motivate, on the other hand, Herzberg says, must be tied to Maslow's higher level needs. They include the rewards cited by Kaiser: achievement, advancement, recognition, and responsibility.

The College of Education at the University of Washington has undertaken a variety of innovative steps to address public concerns about the quality of the teacher workforce.

These steps have included stricter admission standards, program and course revisions, research projects, and proposals to the legislature. Since 1982, particular attention has been directed toward the field placement experience, with efforts to improve the supervision and evaluation of student teachers.

The Teacher Incentives Project (TIPS) was designed to contribute to those efforts by developing and pilot testing methods for attracting, training, and motivating the University's "field associates" - classroom teachers who work with teacher certification students during their field experience. In line with the findings of Kaiser, Herzberg, and their colleagues, TIPS focused on nonsalaried incentives related to higher level needs on Maslow's hierarchy. Overall, the nonsalaried incentives under investigation in the TIPS project included:

1) Recognition for the efforts involved in and the importance of the supervising teacher role; the status of having been selected for special training.

2) Paid release time to attend workshops.

3) Success in the classroom - improved student performance as a result of improved teaching behaviors.

4) Increased confidence based on training in proven teaching and management techniques.

5) Reduced stress through stress management workshops and better classroom management.

The study was funded by a grant from the Secretary of Education's discretionary program, "Improving Teacher Quality Through Incentives."

The field associates (also called supervising teachers) were judged an important population to study for two reasons. First, they are critical to the success of the student teaching experience; any attempts to improve this experience must certainly address the field associate's role. Second, the teachers who are selected to serve as field associates generally fall within the group identified by Rosenholtz as most able, most likely to leave the profession, and most important for the schools to attract and keep - a priority, therefore, of teacher incentives research.

In addition to meeting national needs for research on training and maintaining experienced teachers (on incentives for these teachers' continued dedication to the profession) TIPS was designed to address several specific needs at the state and university levels.

In Washington state, a number of problems have been identified in the structure of student teachers' field experience. Many of these derive from the relationship between the public schools and the teacher training institution, including:

1) There are no incentives for teachers to work with a student teacher; their participation in the program is totally on a voluntary basis.

2) Institutions of higher learning are perceived as "guests" in a particular district or school and have no leverage to demand that teachers working with student teachers meet

certain criteria and be trained to serve as supervising teachers.

3) In most cases selection of supervising teachers rests with the principal. Most principals use appropriate criteria to make the selection, but some do not. As a result, most of the teachers are the right ones for the job but some of them are not.

4) Performance evaluation of student teachers is done by college or university supervisors. These supervisors are teachers hired on a temporary basis (as in the University of Washington) or regular faculty members (as in some of the other institutions). In either case there are supervising teachers who might be better qualified to monitor the work of the student teacher than the current evaluators. At least the supervising teachers are in a position to know more about the performance of the student teachers on a day-to-day basis than the occasional "visitors" from the college or university.

5) Quite often college or university supervisors are to a degree threatening to the supervising teachers and this creates a somewhat unhealthy situation for the student teachers.

6) Occasionally, there are those teachers who will tell the student teacher: "Forget what you learned in the college (or university); this is the real world." That is not an acceptable approach to teacher education. Higher education and practitioners need to work together rather than against each other.

The University has developed proposals to the legislature for restructuring the field experience to make it a more cooperative effort between the teacher training institutions and the public schools. TIPS would contribute to such statewide reform efforts by generating data on the effectiveness of incentives and training for supervising teachers, pilot testing cooperative relationships, and eliciting teacher responses that would be helpful in revising and refining the proposals.

At the University level, TIPS was expected to contribute to:

1) Better supervision of student teachers and better relationships between the University and public schools.

2) Higher quality of teaching on the part of both the field associates and the teacher certification program graduates.

3) Freeing up university resources currently set aside for supervision of student teachers.

4) Further validation and refinement of the University of Washington Teacher Assessment System, or UWTAS. (This system, still in the process of refinement when TIPS began, was designed to replace the existing, and obsolete, means of evaluating student teachers. The previous system, called the Performance Based Evaluation Instrument (PBEI) was highly subjective and did not reflect new developments in teaching research, computerized data analysis, or certification requirements. The UWTAS,

in contrast, is noninferential and data based. It was derived from an extensive review of literature on effective teaching and assesses teacher performance on behaviors which have been proven to affect student achievement. The UWTAS served the project both as an instrument for measuring field associates' classroom behavior and as the basis for training on effective teaching skills.)

Thirty-five teachers participated in the study. They were assigned to one of three experimental groups: Group A received stress management workshops, along with training in the use of the UWTAS;* Group B received the UWTAS training alone; and Group C was the control.

Participants were tested pre and post on four measures: teaching behaviors, coping strategies, stress levels, and locus of control. In addition, the students in their classes were given pre and posttests on their perceptions of classroom environment, locus of control, and student/teacher interactions. Additional, descriptive data were gathered through evaluations of the workshops, both verbal and written.

The research questions being examined were:

1) How does training on skills found by research to produce effective teaching behaviors actually affect teaching behavior ?

* School principals were invited to attend the workshops along with teachers in Group A

2) How does stress management training affect teachers' perceived levels of stress?

3) How does stress management training affect teachers' coping strategies?

4) How does training on teaching skills affect students' perceptions of classroom interactions?

5) How does training on teaching skills affect students' perceptions of classroom environment?

6) How does training on teaching skills affect students' perceptions of academic responsibility?

## METHOD

In response to the public schools' growing concerns regarding their need to attract and keep talented teachers, the University of Washington's Teacher Incentives Project (TIPS) investigated the effects of training and incentives on experienced elementary and secondary teachers. Subjects were divided into three groups. The first, Group A, met one full day per week for seven weeks and received training in stress management and effective teaching skills. The second group, B, met one half day per week over the same period and was trained in the teaching skills only. Group C was the control and received no training.

SUBJECTS

All participants were teachers from urban and suburban school districts in the Seattle, Washington area who had experience working with student teachers in their classrooms. Most were on the University of Washington's current field associate list. All subjects were either teachers of upper elementary (4-5-6) grades or secondary level teachers of science/math. (See Table 1 for composition of the three groups.)

Recruitment of subjects differed in several ways from the original proposal. The chief reason for this was funding; the grant awarded was only about 2/3 of the original request. The goal had been to recruit 26 subjects for each experimental group. This was reduced to 15 to accommodate the lack of funds for release time and other expenses.

As originally planned, subjects were to have been randomly assigned to one of the three groups. This process was initiated; teachers were selected, and project staff met with administrators of all selected school districts to obtain permission to proceed. However, in large part because of the timing of the recruitment (many teachers stated they were interested but were too busy with other planned activities), the random selection process did not yield enough volunteers.

As the next step, project staff approached the person in each

district who was designated to deal with the University in scheduling student teacher placements. These staff people suggested other teachers within their districts who met the requirements of the study and whom they thought might be interested in participating.

The recommended teachers were contacted. However, it still proved impossible to recruit enough subjects until they were allowed to select, themselves, which group they would join. As Figure 1 shows, the level of participation still fell somewhat short of the project's revised goals, with 8-14 teachers in each group. Principals were encouraged to attend Group A workshops along with teachers from their school, but only one participated in all the training.

TRAINING

The content of the workshops was determined by a number of factors. The first consideration was that of teacher incentives. Before writing the proposal, the project evaluator conducted an informal needs assessment among supervising teachers. Asked to name types of inservice they would like to receive, the teachers expressed a strong preference for stress management training.

This was then identified as an incentive, and Dr. Larry Brammer, professor of Educational Psychology and Counseling was engaged to plan and present a stress management workshop for members of Group A. The focus of the training was on identification and strengthening of coping skills and on prevention of maladaptive stress reactions.

Also included in the original plan were workshops to train teachers in proven, effective teaching skills. This part of the training was based on the skills and behaviors identified in the University of Washington Teacher Assessment System (UWTAS). An overview of the UWTAS and a workshop on use of the system in supervising student teachers were included in the training for both Group A and Group B.

The purpose of this training was threefold. First, training in the UWTAS was expected to equip these teachers to take over evaluation of the student teachers assigned to them and to improve the quality of supervision they provide.

Second, it was expected that by studying the UWTAS as an evaluation instrument, the supervising teachers would become more aware of their own teaching behaviors and would make greater use of the skills identified in the UWTAS. As a result, their teaching would improve; their students would learn more; and this in turn, would function as an intrinsic incentive.

Third, the training, feedback, and subsequent evaluation of

teachers using the system would contribute significantly to the process of refining the UWTAS instruments, and thus to overall goals for improving the University's teacher certification program.

The remaining workshop time was to be devoted to the development of specific skill areas addressed in the UWTAS. The topics were not preestablished but were developed during the process of recruitment, based on the following factors:

1) Accommodation to the experience and current teaching assignments of the participants. It became clear that the teachers who volunteered for this study tended to be very experienced and successful in the classroom (several were award-winners) and that they had divergent needs (related primarily to the differences between elementary and secondary teachers). Based on these factors, it was determined that (a) the remaining workshops should touch briefly on a variety of topics, rather than trying to develop one single topic in depth and that (b) ample opportunities be provided for participants to share information among themselves, rather than just receiving lectures.

2) Research on effective teaching strategies. All of the ancillary workshop topics were based on the UWTAS, as an inventory of skills with proven classroom effectiveness. The various sections of the UWTAS were scanned, and those which had received the most attention in recent research and public-professional debate were selected. The final plan included workshops on cooperative learning strategies and

small group instruction, communication skills and classroom management, mainstreaming of the gifted and handicapped, current issues in math education (presented as an example of teaching technologies with application to many subject areas), and models of instruction.

3) Feedback from participants. In the first workshop, participants completed a written needs assessment; and the first half hour of each subsequent workshop was devoted to informal feedback, comments, suggestions, and discussions. This formative evaluation was used throughout the project to revise the workshops' content and structure. For example, the session on models of instruction was cancelled at teachers' request, and an informal meeting with methods professors was arranged as a substitute. The miniteaching session was also cancelled. Instead, 10 teachers were videotaped in their classroom. These tapes were played back at the workshops, and participants scored the teachers' performance using a portion of the UWTAS. Feedback was solicited on both the instrument and the teaching.

A description of all planned workshops and their presenters can be found in the appendix.

## COLLECTION AND ANALYSIS OF DATA

In addition to the formative evaluations conducted throughout the project, a number of pre and post measures were taken to provide summative evaluation of the project's overall effects. Information was gathered through independent observers, teacher questionnaires, and student questionnaires. The instruments used are described below.

UWTAS Instructional Component Instrument: Assessment of teaching behaviors was conducted using the Instructional Component of the University of Washington Teacher Assessment System. The items contained in this instrument are arranged hierarchically into 11 skill areas, 39 indicators, and 112 descriptors. The descriptors used for this study cover the areas of instructional organization, instructional strategies and resources, confidence, communication skills, motivation and reinforcement skills, evaluation procedures, interpersonal behavior and classroom management.

Three observers were selected and trained on the use of the instrument. Criteria for selection included substantial teaching experience at either elementary or secondary level. The observers who were chosen were advanced graduate students in education at the University of Washington.

The training procedure was similar to the one established for training University of Washington field supervisors. Observers viewed training videotapes of regular class instruction at the elementary and secondary levels. They rated the performance of the videotaped teachers using the UWTAS and used the scoring procedures which were in effect at this time. (Subsequent refinements of this instrument have occurred: there have been some changes in scoring procedures and in some of the descriptors.)

For this study, the observers were assigned a group of teachers whom they followed from pretest to posttest, visiting each classroom at the beginning and end of the study. Interrater reliability was determined by having the three observers view a videotape of one of the teachers in the study during regular class instruction and calculating the percentage of responses on which the observers agreed. Interrater reliability was computed at 85%.

The Coping Response Profile was one of the three questionnaires completed by teachers on topics related to stress. It was based on an experimental instrument developed by Bugen and Hawkins (1981) at the University of Texas and adapted by Dr. Brammer for use in this study. It measures three domains: coping skills/strategies, coping resources, and intellectual efficiency. The Coping Response Profile has been tested with several populations, and some tentative norm groups have been identified among human services personnel.

The Human Services Survey, also called the Maslach Burnout Inventory (Maslach & Jackson, 1981) is a well known, standardized measure of teacher burnout. It assesses levels of emotional exhaustion, depersonalization of service recipients (in this case, students), and lack of personal accomplishment.

A Stress Awareness Checklist was developed by the stress management workshop presenter, Dr. Brammer. It is self-reported inventory identifying the presence or absence of common stress factors.

A Teacher Survey of Classroom Locus of Control was also developed by the project. This questionnaire measures teachers' perceptions of their own responsibility for classroom control and student learning. It was expected that if teachers' sense of internal control were greater, they would feel less need to impose external control on their classes; and students would experience this as an improvement in classroom environment and interactions.

The Student Inventory of Classroom Environment was one of two student questionnaires developed by the project evaluator. It was based on the UWTAS and assesses students' perceptions of teachers' behaviors in key skill areas. Two versions (different primarily in reading levels) were prepared, one for elementary and one for secondary students. The relation of classroom environment to student achievement has been documented by Anderson (1982), Moos (1979; Insel & Moos, 1974), Rutter (1983) and other researchers.

The Student Inventory of Classroom Interactions, like the environment inventory, was project-developed, with elementary and secondary level versions.

This instrument was modeled on the Maslach and was designed to assess student perceptions of teachers' stress reactions. The items address student/teacher interactions in the classroom.

The Intellectual Achievement Responsibility Questionnaire, (Crandall, Katkovsky, & Crandall, 1965) assesses the degree to which students feel responsible for their academic performance (locus of control). The instrument includes 34 items. Students' scores are based on the sum of positive events for which they assume credit and negative events for which they assume blame. It has been normed for boys and girls grades 3-12. There is extensive research evidence linking locus of control and academic achievement (Vasquez, 1978). Actual student achievement data were not accessible, due to school and university regulations.

## LIMITATIONS OF THE STUDY

The chief limitation of the research was the small number of subjects. At the time or posttesting, there were only 13 teachers in Groups A and B and 9 in Group C - too few to yield accurate results on a t-test. (Reasons for the problem include reductions in the amount of funds awarded, attrition due to illness, scheduling conflicts, and the difficulties in recruiting teachers to participate). Because of the small sample size, strong inferences cannot be made.

A second limitation was the inability to control for personality differences among teachers. The pretests showed significant variations among stress levels of subjects before the intervention started, and the research design did not allow for analysis of the effects of these differences. Furthermore, although all subjects were willing to participate in the study, some entered with a strong bias against the concept of non-salaried incentives and expressed skepticism throughout the project. The group design made it impossible to assess the impact of these individual differences.

Because of these limitations, the conclusions drawn from the study must be viewed as tentative. Further research will be needed to verify the outcomes.

## RESULTS

Data from all teacher and student instruments were tabulated, and t-tests were performed to compare the mean scores of groups A, B, and C on each measure. In some cases, correlated t-tests were also run on the pre and post scores of individual teachers to assess whether significant changes had occurred at this level. Group A and B responses to the open-ended and multiple choice questions on workshop satisfaction were tabulated and summarized. Results of all these instruments are reported in this section. Teacher measures are reported first, then the student measures.

TEACHER MEASURES

Human Services Survey: An analysis of pretest scores on The Human Services Survey was conducted to determine whether differences existed between the three teacher groups at the beginning of the study. For each statement, the two dimensions of the instrument were rated: intensity and frequency of feelings. The results suggest that the groups differed in their perceptions of work-related stress.

Group A teachers reported significantly higher scores at the pretest on 32% of the items when compared to Group B. In a pretest comparison of Group B and C teachers, teachers in Croup C, the control group, reported significantly more emotional exhaustion and depersonalization on 9% of the items on the frequency dimension and 32% of the items on the intensity dimension. Fewer differences were observed in a pretest comparison of Group A and C teachers. (Group A teachers reported more emotional exhaustion on one item and greater personal accomplishment on one item. Group C teachers reported greater depersonalization than Group A teachers on one item.)

A summary of these pretest differences is represented in Table 2 (a,b,c). For each group, subjects' scores on the pretests and posttests were compared to the norms established by Maslach and Jackson (1981) for the Human Services Survey. When differences were found, t-tests were run to determine whether these differences were significant. The results are reported for each group.

Group A (teachers who received the stress management training): mean scores on four items from the Emotional Exhaustion subscale were higher before the treatment. T-tests revealed significant differences ($p < .05$). The items from the subscale and their means are represented in Table 3.

Group B (teachers who received the teaching skills training only): one item from the Personal Accomplishment subscale changed significantly: "I have accomplished many worthwhile things in this job." Teachers in this group reported a reduced sense of personal accomplishment as reflected in this item.

Group C (control group) reported significant difference in emotional exhaustion on two items: "I feel emotionally drained" and "I feel burned out." Teachers reported less emotional exhaustion at the end of the study.

Discussion: The pretest comparisons suggest that differences existed among the three teacher groups at the beginning of the study. Group A teachers reported greater stress, alienation, and a lessened sense of personal accomplishment than their counterparts in Group B. Likewise, Group C teachers reported significantly more stress and alienation than Group B. Teachers in Groups A and C appeared more like one another than Group B in the amount and intensity of job-related stress reported at the beginning of the study.

The results of the pretest/postest analysis must be interpreted with caution due to the small number of subjects in each group.

In the case of Group A (Pretest N = 14; Posttest N = 13), a strong interpretation of the findings suggests that the stress management training had an effect in modifying the subjects' feelings and attitudes about being emotionally overextended and exhausted by their work. A more conservative interpretation of these results would be that the treatment holds promise of effectiveness but needs to be tested with a larger sample.

For Group B (Pretest, Posttest N = 12), the reduced sense of personal accomplishment that was observed on one item does not appear to suggest a significant trend in this group. Overall, only a slight change was observed in the reported level of stress and job satisfaction over the course of the study.

For Group C (Pretest N = 8; Posttest N = 9), the finding of a reduction in the reported stress level on two items is surprising since this group was not systematically exposed to any treatment which could account for a reduction in their perceptions of emotional exhaustion.

Stress Awareness Checklist: Significant changes in response from pre to post were found for each of the three experimental groups on this measure. Group A had the largest number of changes; on four items (out of a total of 72), their mean scores showed a small but significant change in the direction of lower stress. All changes were from a score of approximately 2 (infrequently) to 1 (never). Table 4 displays an exact listing of

each item and the amount of change for all three groups.

Interestingly, two of the items on which Group A showed a change that suggested an increase in teachers' sense of control over their environment. The results of the Teachers' Locus Control Instrument, however, showed no statistically significant change.

Mean results for Group B showed two significant changes, one in the direction of less perceived stress and one in the opposite direction. Group C also showed significant change on one item, in the direction of lower stress. For both Groups B and C, the shift in mean score was also from about 2 to about 1.

Discussion: Although all six changes noted above were statistically significant, they are sporadic and do not follow any particular pattern from which further inferences can be drawn. The fact that the treatment group showed changes on only 4 of 72 items, and that changes were noted (in both directions) among the nontreatment groups as well, suggests the conclusion that the stress management workshop did not effect a change in teachers' perceived levels of stress. However, it is also possible that:

1) A self-report questionnaire of this nature does not provide an accurate measure of stress level change.

2) The period of time between pre and post testing was too short to reveal effects of the training.

3) A larger sample was needed in order to get meaningful results.

Further research would be necessary to determine which of these is true.

Coping Response Profile: Results of the Coping Response Profile were also inconclusive. Each of the three groups showed statistically significant change on one item. In the case of Groups A and C, these were changes in the expected direction: they showed greater use of a particular coping strategy. Group B, however, showed significant change in the opposite direction, indicating reduced use of the strategy in question.

Discussion: Again, as with the Stress Awareness Checklist, results are inconclusive regarding the effectiveness of the stress management workshops. The same possible limitations regarding the appropriateness of the instrument, time elapsed between pre and posttesting, and size of the sample would apply.

Teacher Locus Control: Analysis revealed no statistically significant changes by any group on the project-developed questionnaire used to measure teachers' perceptions of locus of control.

UWTAS Instructional Component Instrument: The pretest ratings of teachers in all three groups were summed, and a mean score was calculated. The average rating of all participants at the beginning of the study was:

1) 81% of the behaviors on the UWTAS were demonstrated

2) 2% of the behaviors were not demonstrated but the observers indicated that it would have been possible to demonstrate those behaviors

3) 17% of the behaviors were not demonstrated because of the limitations of the classroom context.

Posttest mean scores were calculated for each group, and t-tests were used to determine if significant difference occurred between groups after the training. No significant differences were found. (See Table 5)

Correlated t-tests were also used to determine if differences existed between paired observations for each teacher. In this analysis, no significant differences were found.

Discussion: While no treatment effects were found for either of the experimental groups, this finding should be interpreted with caution. Several factors may have contributed to dilution of any effects which might have occurred. First, the teachers who participated in the study already demonstrated a high proportion of the behaviors that the UWTAS was designed to measure. The range for possible improvement was therefore narrow. Second, although the UWTAS has gained national recognition for its effectiveness in rating performance of student teachers (the use for which it was originally developed), the scoring procedure may not have been refined enough to detect differences among experienced, or master teachers. Third, the limited amount of time (90 minutes) spent by the observers in each classroom may have been insufficient to detect changes which may have occurred. Fourth, the period between pre and posttesting may not have been long enough for effects to be identified.

Workshop Satisfaction Questionnaires: At the end of the workshops, teachers in groups A and B filled out questionnaires to elicit responses to the workshops and suggestions for incentives. The questionnaire included both Likert-type ratings of the individual workshops and open-ended opportunities for comments. The incentives suggestions are summarized in Table 7 and Likert ratings in Table 6.

Asked to select the workshop feature they liked the most, teachers most often commented on the chance to share with other experienced teachers. The math and cooperative learning workshops also received many positive comments. Other factors mentioned under this heading by at least two respondents included the UWTAS workshop and the videotaping. As the least liked feature, teachers most often mentioned the stress management workshops and the mainstreaming workshop.

When asked to name possible incentives, the teachers in Group A most often mentioned university privileges such as library use and reduced or free tuition, followed by monetary incentives such as salary increases, rewards tied to career advancement, and money for materials and facilities. Group B mentioned monetary incentives most often. Other incentives often mentioned included improvements in teacher status, paid release time, and training on the latest approved teaching techniques.

Ratings on the usefulness of the workshops tended to be fairly evenly distributed along the lower four steps of the Likert scale; few teachers gave the highest rating to any workshop, with one exception (Group A ratings of the cooperative learning workshop).

Discussion: The generally unenthusiastic ratings given to the workshops by teachers appear to be in line with the lack of conclusive evidence of change on other measures. This is true of responses to both parts (open-ended and multiple choice) of the questionnaire.

It is interesting to note that although the research tends to point to greater effectiveness of nonsalaried incentives, the teachers in this project mentioned monetary incentives more often than nonmonetary ones (especially if tuition reductions are included under monetary incentives.) Further research, it appears, will be required to determine which incentives are indeed most effective, and under what conditions.

## STUDENT MEASURES

Like the teachers, students in each group showed change on specific items of the instruments they completed, and the changes were in both directions. Results for elementary and secondary students were tabulated and analyzed separately to control for potential differences between the two groups.

Inventories of Classroom Environment and Classroom Interactions (elementary):

The elementary-level students of teachers in Group A showed statistically significant differences on 11 items out of 44 included in these inventories. (See Table 8.) However, only one of these reflected change in the expected direction (more positive perceptions of the classroom). The other 10 all indicated decreased quality in class environment or student/teacher interactions as perceived by students.

Group B elementary students showed no significant change pre to post in the expected direction; but changes in the opposite, unexpected direction were significant on five items of the inventories. Group C showed the lowest level of change, with one item of significance in the expected direction and two in the unexpected direction.

Inventories of Classroom Environment and Classroom Interactions (secondary):

Secondary level students of Group A showed significant change on six items of the classroom inventories. Two were in the unexpected direction of less positive perceptions. Group B secondary students showed significant change on nine items; and five were in the negative and unexpected direction. Group C students at this age level had the smallest number of items with statistically significant change: three changes all in the negative direction.

Discussion: While all differences noted pre to post were relatively small, attention must certainly be paid to the fact that the great majority of changes were opposite the direction predicted, and students in the treatment groups showed more movement in this direction than those in the control. The most obvious potential explanation for the treatment/control differences is that treatment group teachers were removed from their classes while training took place. Thus, classes were run by substitutes for 10% (Group B) or 20% (Group A) of the week over the entire project period.

It is possible that student responses were reflecting negative feelings about (a) their teachers' frequent absences, (b) classroom quality under the substitute, or (c) a composite, disruptive effect on the classroom due to the requirements of the project.

Because increases in negative responses were present from the control group too, the possibility that students had a negative reaction to the questionnaires must also be considered. It is also possible that the timing of the posttest (immediately after the workshops) was too early to reveal changes that actually did take place.

Student Intellectual Achievement Responsibility Questionnaire (elementary):

Group A elementary students showed statistically significant change on three items of the Intellectual Achievement (Locus

of Control) questionnaire. One was in the expected direction of greater internal locus of control: two were in the opposite direction, toward perceptions of greater external control. Elementary students of Group B teachers showed significant change on two items, in the expected direction; and Group C students of this age level showed no significant differences pre to post.

Student Intellectual Achievement Responsibility Questionnaire (secondary):

The mean scores of secondary students in Group A indicated significant differences on three items of this measure. All were in the unexpected direction (greater externalization of control). Group B secondary students showed the largest number of changes on this measure: one in the expected and 10 in the unexpected direction. Group C showed one change in the expected and 3 in the unexpected direction.

Discussion: Statistically significant change was noted on quite a large number of items for this measure: 23 among elementary students and 33 among secondary. As with the student inventories, the great majority of changes were opposite the direction that had been expected. In all cases but the secondary level A group, it was again true that the treatment groups showed more change in the unexpected direction than the control. The effect of their teachers' absence must again be considered as a possible factor in this outcome, as must the possibility of negative attitudes toward the evaluation process itself.

## CONCLUSIONS

The data from all instruments, both teacher and student, appear to be fairly consistent. They reveal a few significant differences but not enough to point to any particular pattern of change. The changes were statistically significant on individual test items only and occurred in both the expected and the unexpected direction. Overall, they were never large enough or consistent enough to suggest that the treatment led to improvements in the classroom. With a few exceptions, teacher data remained approximately the same before and after treatment, and student perceptions appeared to be somewhat more negative at the posttest.

Examination of these facts points to the following possibilities and conclusions:

The Pull-Out Model: Although teachers agreed that paid release time does serve as an incentive, the removal of teachers from their classes for the purpose of training seems to have been disruptive for students.

The replacement of their regular teacher by substitutes seems the most likely explanation for increased negative perceptions of the classroom among both experimental groups. There was little variation between students of Group A teachers (who were gone for seven full school days) and those of Group B (who missed one half day per week for seven weeks).

Given the generally unenthusiastic responses of the teachers to the workshops and the inconclusive data from stress management and teaching skills training, it appears that the pull-out model for training was not the most effective or appropriate one. It would seem that the negative effects of teachers' removal from classrooms were not justified by the results.

Measuring Master Teachers: It is possible that more or greater changes were actually taking place than were identified by project data. It is quite possible, for example, that changes in teachers' behavior - as perceived by students and the teachers themselves - would not be measurable immediately at the end of training (when the posttests were given) but would manifest themselves over time. Follow-up testing would be necessary to verify this.

Other problems in measurement have to do with limitations of the instruments. When the project began, the scoring system for the UWTAS had not yet been finalized. A scoring system which was not as refined as the one now in use had to be improvised. It is possible that the more sophisticated scoring and analysis methods now available would have detected changes not identified by the TIPS observers.

This is particularly important because, as the pretest scores showed, the teachers participating in this study were already operating at a very high rate of demonstrated teaching behaviors. A high degree of variability in scoring would be

required to identify improvements within the narrow range at the upper end of the scale.

Because the student inventories were project-developed and have not been normed with large samples of students, it is possible that these scores also fall within a narrow, upper range where changes are difficult to measure. Further use of both the student inventories and the UWTAS would be necessary to test these possibilities.

Teacher/Training Match. The low level of teacher satisfaction with the workshops points to problems in attaining an appropriate match between the training (incentive) and the participants. As Herzberg and Kaiser explain, the factors which satisfy and motivate teachers must be linked to the higher level needs on Maslow's hierarchy. They must provide rewards in such areas as achievement, advancement, recognition, and responsibility. If the workshops do not lead to such rewards - if they do not provide skills or information that teachers need - they will not, of course, function as incentives. Training is only an effective incentive if it is well matched with the needs and preferences of the teachers involved.

In the case of TIPS, there were initial recruitment problems which meant that school administrators - rather than project staff - controlled the selection of many participants; and there were insufficient opportunities to assess participants' individual strengths and weaknesses before designing the workshops.

To achieve a successful teacher/training match, it appears important to select for participation those teachers who need the training in order to gain rewards such as achievement and recognition (teachers for whom the workshops would truly be incentives).

## RECOMMENDATIONS

Several teachers suggested that training in the most up-to-date, approved teaching techniques does constitute an incentive for them. Based on the TIPS experience, it is recommended that the possibilities in this area be further researched and developed, with the following stipulations:

1) A combination of teacher needs assessments and on-going teacher participation in design and implementation of the training should be employed to achieve an appropriate teacher/training match.

2) There should be more emphasis on sharing among teachers and peers and less on presentations by university professors.

3) The pull-out model should be avoided; other methods, such as Joyce and Showers' (1983) coaching model should be examined as alternatives.

The findings also have important implications for the teacher career ladder proposals currently being circulated. Most of these proposals suggest assigning all presently employed teachers to the same (middle) levels of a system of career steps.

Advancement up the steps would then be based on criteria such as completion of certain training sequences.

What the data appear to show is that some teachers are already so accomplished that they will not benefit from such training. Indeed, to require training that teachers do not need may actually function as a disincentive. It seems more appropriate and productive to take a more individualized approach to career ladders. For the potential of such incentive structures to be fully realized, teachers should be individually assessed before placement on a career ladder, and those who are found to have attained high skill levels should be assigned to higher steps - without having to complete further requirements.

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# APPENDIX A: TABLES

## TABLE 1
Subjects

| PRETEST | | POSTTEST | |
|---|---|---|---|
| Group A (N = 14) | | Group A (N = 13) | |
| Elementary | 10 | Elementary | 10 |
| Secondary | 4 | Secondary | 3 |
| Group B (N = 12) | | Group B (N = 12) | |
| Elementary | 7 | Elementary | 7 |
| Secondary | 5 | Secondary | 5 |
| Group C (N = 8) | | Group C (N = 9) | |
| Elementary | 5 | Elementary | 6 |
| Secondary | 3 | Secondary | 3 |

TABLE 2a
HUMAN SERVICES SURVEY

Pretest Differences between Groups A & B

| HUMAN SERVICES SURVEY SCALE ITEM | GROUP A MEAN | GROUP B MEAN | MEAN DIFFERENCES* |
|---|---|---|---|
| Frequency (0 = never; 6 = every day) | | | |
| 2. I feel used at the end of the workday | 4.28 | 2.83 | 1.45 |
| 6. Working with people all day is really a strain for me | 1.78 | .75 | 1.03 |
| 10. I've become more callous toward people since I took this job | 1.85 | .58 | 1.27 |
| 13. I feel frustrated by my job | 3.07 | 1.66 | 1.41 |
| 16. Working with people directly puts too much stress on me | 1.42 | .50 | 1.92 |
| 20. I feel like I'm at the end of my rope | 1.35 | .33 | 1.02 |
| 22. I feel recipients blame me for some of their problems | 2.35 | 1.16 | 1.19 |
| Intensity (0 = never; 7 = majority, very strong) | | | |
| 2. I feel used up at the end of the workday | 4.57 | 2.75 | 1.82 |
| 3. I feel fatigued when I get up in the morning and have to face another day on the job | 3.35 | 1.83 | 1.52 |
| 6. Working with people all day is really a strain for me | 2.64 | 1.25 | 1.39 |

| | GROUP A MEAN | GROUP B MEAN | MEAN DIFFERENCE* |
|---|---|---|---|
| 8. I feel burned out from my work | 4.00 | 2.25 | 1.75 |
| 16. Working with people directly puts too much stress on me | 2.14 | .75 | 1.39 |
| 18. I feel exhilarated after working closely with my recipients | 5.78 | 4.75 | 1.03 |
| 22. I feel recipients blame me for some of their problems | 3.00 | 1.33 | 1.67 |

*$p < .05$

TABLE 2b
HUMAN SERVICES SURVEY

Pretest Differences between Groups B & C

| HUMAN SERVICES SURVEY SCALE ITEM | GROUP B MEAN | GROUP C MEAN | MEAN DIFFERENCE* |
|---|---|---|---|
| Frequency (0 = never; 6 = every day) | | | |
| 13. I feel frustrated by my job | 1.66 | 3.62 | 1.96 |
| 22. I feel recipients blame me for some of their problems | 1.16 | 4.00 | 2.84 |
| Intensity (0 = never; 7 = very strong) | | | |
| 1. I feel emotionally drained from my work | 3.00 | 4.50 | 1.50 |
| 6. Working with people all day is really a strain for me | 1.25 | 3.37 | 2.12 |
| 8. I feel burned out from my work | 2.25 | 4.37 | 2.12 |
| 10. I've become more callous toward people since I took this job | 1.50 | 3.62 | 2.12 |
| 14. I feel I'm working too hard on my job | 2.58 | 4.50 | 1.92 |
| 16. Working with people directly puts too much stress on me | .75 | 2.50 | 1.75 |
| 22. I feel recipients blame me for some of their problems | 1.33 | 4.00 | 2.67 |

* $p < .05$

TABLE 2c
HUMAN SERVICES SURVEY

Pretest Differences between Groups A & C

| HUMAN SERVICES SURVEY SCALE ITEM | GROUP A MEAN | GROUP C MEAN | MEAN DIFFERENCE* |
|---|---|---|---|
| Frequency (0 = never; 6 = every day) | | | |
| 2. I feel used up at the end of the work-day | 4.28 | 2.87 | 1.41 |
| 22. I feel recipients blame me for some of their problems | 2.35 | 4.00 | 1.65 |
| Intensity (0 = never; 7 = very strong) | | | |
| 4. I can easily understand how my recipients feel about things | 5.64 | 4.62 | 1.02 |

* $p < .05$

TABLE 3
HUMAN SERVICES SURVEY
Pretest/Posttest Differences: Group A

| HUMAN SERVICES SURVEY SCALE ITEM | PRETEST MEAN | POSTTEST MEAN | MEAN DIFFERENCE* |
|---|---|---|---|
| Frequency (0 = never; 6 = every day) | | | |
| 2. I feel used up at the end of the work-day | 3.64 | 3.23 | .41 |
| Intensity (0 = never; 7 = major, very strong) | | | |
| 1. I feel emotionally drained from my work | 4.21 | 3.15 | 1.06 |
| 2. I feel used up at the end of the workday | 4.57 | 3.38 | 1.19 |
| 8. I feel burned out | 4.00 | 2.62 | 1.38 |

* $p < .05$

TABLE 4

Stress Awareness Checklist Results

| GROUP | ITEM | DIRECTION OF CHANGE * |
|---|---|---|
| A | Other people prevent me from getting what I want: I am a victim of circumstances beyond my control. | Less Frequent ** |
| | I experience changes in my appetite and eating habits. | Less Frequent |
| | I think I am losing control of myself and my work. | Less Frequent |
| | I feel rushed to get instructional tasks done. | Less Frequent |
| B | I finish others' sentences before they do. | Less Frequent |
| | My responsibilities at school are unclear. | More Frequent |
| C | I feel drained at the end of the day. | Less Frequent |

* $p < .05$

** All changes were within 2 point range on a 5 point Likert scale

TABLE 5

UWTAS Instructional Component Results
(Frequencies)

| GROUP A | PRETEST | | POSTTEST | |
|---|---|---|---|---|
| + * | 1,259 ** | (80%) | 1,294 | (85%) |
| NP | 274 | (17%) | 195 | (13%) |
| — | 32 | ( 2%) | 20 | ( 1%) |
| GROUP B | | | | |
| + | 1,068 | (80%) | 1,110 | (83%) |
| NP | 216 | (16%) | 215 | (16%) |
| — | 50 | ( 4%) | 19 | ( 1%) |
| GROUP C | | | | |
| + | 735 | (82%) | 709 | (79%) |
| NP | 159 | (18%) | 181 | (20%) |
| — | 2 | ( 1%) | 6 | ( 1%) |

Instructions to Observers:

* If the behavior is demonstrated during the lesson being observed, mark plus (+).

If the behavior is not demonstrated during the lesson being observed, but it could have been possible to demonstrate the behavior, mark minus (—).

If it was not possible to demonstrate the behavior because of the limitations of the classroom context, mark Not Possible (NP).

** Total number of descriptors present among all teachers in group and percentage of total possible.

TABLE 6

Responses to Workshop Satisfaction Questionnaire

| QUESTION | GROUP A (1*) | (2) | (3) | (4) | (5) | GROUP B (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|---|---|---|---|---|
| Stress management workshops: | | | | | | | | | | |
| a) beneficial to professional life | 6 | 3 | 3 | 1 | - | | | | | |
| b) beneficial to personal life | 3 | 5 | 3 | 2 | - | | | | | |
| Presently using approaches from: | | | | | | | | | | |
| a) cooperative learning workshop | - | 3 | 5 | 3 | 1 | 1 | 4 | 3 | 3 | - |
| b) classroom management workshop | 2 | 2 | 3 | 3 | 2 | 4 | 5 | 2 | - | - |
| c) mainstreaming workshop | 6 | - | 3 | 2 | 1 | 3 | 4 | 2 | 2 | - |
| d) mathematics workshop | 4 | 1 | 2 | 4 | 1 | 3 | 4 | 4 | - | - |
| Stimulated thoughts on new approaches: | | | | | | | | | | |
| a) cooperative learning workshops | - | - | 3 | 4 | 5 | - | 1 | 4 | 4 | 2 |
| b) classroom management workshop | 1 | 4 | 5 | 2 | - | 2 | 4 | 3 | 2 | - |
| c) mainstreaming workshop | 5 | 2 | 2 | 2 | 1 | 2 | 1 | 6 | 2 | - |
| d) mathematics workshop | 2 | 3 | 3 | 2 | 2 | 3 | 2 | 2 | 4 | - |
| Workshops improved knowledge of supervision. | 3 | 3 | 6 | 1 | - | 1 | 2 | 4 | 4 | - |
| Workshops improved skills in supervision. | 3 | 3 | 4 | 3 | - | 1 | 3 | 4 | 3 | - |

* KEY: (1) Not at all (2) Very Little (3) Moderately (4) Greatly (5) Extremely

TABLE 7

Teacher Suggestions for Incentives

| | INCENTIVE | NUMBER OF RESPONSES GROUP A | GROUP B |
|---|---|---|---|
| 1) | Monetary (salary increases, rewards tied to advancement, money for materials, etc.) | 6 | 4 |
| 2) | Advancement opportunities (monetary rewards not mentioned). | 2 | |
| 3) | Change in status (a) re: The University | 4 | 1 |
| | (b) re: school administration and the public). | 4 | 2 |
| 4) | University privileges (library use, parking, reduced or free tuition, etc.) | 7 | 2 |
| 5) | Release Time (for planning, classes, sabbaticals, etc.; more aides). | 2 | 3 |
| 6) | Training on new teaching and class management techniques. | 2 | 3 |
| 7) | Smaller classes | 2 | |
| 8) | Other | 3 | 4 |
| | Number of respondents | 13 | 11 |
| | Number of comments per respondent | 1-5 (average-3) | 0-3 (average-2) |

TABLE 8a

Inventories of Classroom Environment And Classroom Interactions

Results: Elementary Students

| GROUP A | PRETEST MEAN (N = 228) | POSTTEST MEAN (N = 210) | MEAN DIFFERENCE * |
|---|---|---|---|
| Classroom Environment (1 = never; 5 = always) | | | |
| My teachers lets me know regularly how I'm doing. | 2.35 | 2.59 | .24 |
| My teacher gives clear directions. | 3.43 | 3.18 | .25 |
| My teacher speaks clearly. | 3.64 | 3.43 | .21 |
| I am treated the same way everyone is. | 3.44 | 3.27 | .17 |
| My teacher listens to my side of the story and is fair. | 3.33 | 3.05 | .28 |
| Classroom Interaction (1 = never; 5 = always) | | | |
| My teacher is friendly. | 3.55 | 3.38 | .17 |
| I have a good feeling toward this class. | 3.20 | 2.95 | .25 |
| I like the way may teacher treats me. | 3.37 | 3.09 | .28 |
| I care about what happens in this class. | 3.34 | 3.04 | .30 |

| GROUP A | PRETEST MEAN (N = 228) | POSTTEST MEAN (N = 210) | MEAN DIFFERENCE * |
|---|---|---|---|
| I can relax when I'm in this class. | 2.59 | 2.37 | .22 |
| Problems in this class are handled easily. | 3.34 | 3.18 | .16 |

| GROUP B | (N = 172) | (N = 167) | MEAN DIFFERENCE * |
|---|---|---|---|
| Classroom Environment (1 = never; 5 = always) | | | |
| My teacher seems to be organized. | 3.14 | 2.90 | .24 |
| My teacher's voice is easy to listen to. | 3.68 | 3.50 | .18 |
| My teacher includes me in classroom activities. | 3.69 | 3.51 | .18 |
| Classroom Interaction (1 = never; 5 = always) | | | |
| I learn more by working directly with my teacher. | 2.62 | 2.27 | .35 |
| Problems in this class are handled easily. | 3.55 | 3.30 | .25 |

| GROUP C | (N = 94) | N = 117) | MEAN DIFFERENCE * |
|---|---|---|---|
| Classroom Environment (1 = never; 5 = always) | | | |
| I am treated the same way everyone else is. | 3.41 | 3.05 | .36 |

| GROUP C | PRETEST MEAN (N = 94) | POSTTEST MEAN (N = 117) | MEAN DIFFERENCE * |
|---|---|---|---|
| My teacher includes me in classroom activities. | 3.68 | 3.42 | .26 |
| I feel good about what I have learned in this class. | .83 | 1.32 | .49 |

* $p < .05$

TABLE 8b

Inventories of Classroom Environment and Classroom Interactions
Results: Secondary Students

| GROUP A | PRETEST MEAN (N = 68) | POSTTEST MEAN (N = 42) | MEAN DIFFERENCE * |
|---|---|---|---|
| Classroom Environment (1 = never; 5 = always) | | | |
| My teacher lets me know regularly how I'm doing. | 1.78 | 2.33 | .55 |
| I know how I am supposed to behave in this class. | 3.79 | 3.36 | .43 |
| My teacher shows interest in my class. | 3.82 | 3.43 | .39 |
| My teacher's voice is easy to listen to. | .81 | 1.10 | .29 |
| Classroom Interaction (1 = never; 5 = always) | | | |
| I feel I'm working too hard in this class. | 1.56 | 2.17 | .61 |
| My teacher embarrasses me. | .39 | .88 | .49 |

| GROUP B | (N = 117) | (N = 120) | MEAN DIFFERENCE * |
|---|---|---|---|
| Classroom Environment (1 = never; 5 = always) | | | |
| My teacher speaks clearly. | 3.48 | 3.20 | .28 |
| My teacher lets me share my ideas in class. | 3.27 | 2.90 | .37 |
| I know how I am supposed to behave in this class. | 3.68 | 3.34 | .34 |
| I am able to do the things the other students can. | 3.14 | 2.83 | .31 |

| GROUP B | PRETEST MEAN (N = 117) | POSTTEST MEAN (N = 120) | MEAN DIFFERENCE * |
|---|---|---|---|
| Classroom Interaction (1 = never; 5 = always) | | | |
| My teacher is sensitive toward me. | 2.15 | 2.54 | .39 |
| I feel I'm working too hard in this class. | 1.71 | 2.08 | .37 |
| I like the way my teacher treats me. | 2.98 | 2.72 | .26 |
| I feel used by the end of this class. | 1.57 | 2.07 | .50 |
| My teacher embarasses me. | 1.02 | 1.50 | .48 |

| GROUP C | (N = 59) | (N = 37) | MEAN DIFFERENCE * |
|---|---|---|---|
| Classroom Environment (1 = never; 5 = always) | | | |
| My classroom is neat and comfortable. | 3.61 | 3.27 | .34 |
| My teacher listens to my side of the story and is fair. | 3.51 | 3.16 | .35 |
| Classroom Interaction (1 = never; 5 = always) | | | |
| I like the way my teacher treats me. | 3.25 | 2.86 | .39 |

* $p < .05$