

THREE ACTION RESEARCH DEMONSTRATIONS USING MICRO-TEACHING  
AS A METHOD OF IN-SERVICE IMPROVEMENT OF TEACHING  
AT MANHATTAN JUNIOR HIGH SCHOOL

by 149

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## THE PROBLEM AND DEFINITIONS OF TERMS USED

During the 1966-67 school year, Manhattan Junior High School had an enrollment of approximately 1200 students. When a school reaches this size, it is difficult for administrators to visit classrooms frequently to observe and supervise teaching. Therefore, teachers are denied the opportunity for constructive criticism and advice from an objective and experienced observer similar to that available to them during their student teaching.

Through various department meetings it was requested that departmental members be given an opportunity to share ideas of technique, method, and content and to help improve teaching.

These three micro-unit demonstrations were presented as a possible solution to both of the above problems.

### I. THE PROBLEM

Statement of the problem. It was the purpose of this project (1) to demonstrate a new technique available to teachers as a method of in-service improvement of teaching, and (2) to give the micro-teachers involved in the demonstrations an opportunity to improve their teaching techniques through advice from the other faculty members.

Importance of the study. In order that teachers attain the highest level of teaching competence possible, it is desirable that beginning teachers have the experience, advice, and methods of career teachers available to them. In past years at Manhattan Junior High School, this has been a haphazard arrangement between individuals rather than a systematic, organized, and professional goal. Through in-service training of teachers within departments, it is possible to provide beginning teachers with continuing help and supervision of their teaching throughout their initial teaching experiences.

In addition, micro-teaching provides a vehicle for the sharing of ideas, techniques, and methods used by individual teachers with the department as a whole. By teaching a micro-unit, a teacher can demonstrate a lesson which might be a valuable approach for other faculty members, or the teacher might teach a lesson which does not go smoothly for him in an effort to improve the lesson through corrective measures suggested by his fellow teachers.

Finally, these demonstrations introduced a new method which may be used by the department to try out new machinery, text books, curriculum changes, or new programs on a trial basis before adopting them for school-wide acceptance.

## II. DEFINITIONS OF TERMS USED

Action research. This report uses Jane Franseth's definition of action research. She says, "From my point of view, action

research is a systematic examination conducted by individuals or groups studying their own practices in search of sound answers to unresolved problems in their work and aimed at improving their own performance on their jobs."<sup>1</sup>

Micro-unit. Throughout this report, the term "micro-unit" shall be used to mean the entire procedure of teaching and discussing the scaled-down teaching encounter in class size and class time. Class size was limited to six or seven students and class time from ten to twenty-five minute lessons. Micro-teaching may be used with or without video-tape, but the lessons in this report were all filmed on video-tape.

The micro-unit consisted of a short lesson which was taught to one group of six or seven students before a group of faculty member observers. After the first lesson was taught, the micro-teacher left the room while the students discussed their reactions toward the lesson. The students left and the micro-teacher returned. At this time the micro-teacher was informed of student reactions and the faculty observers recommended changes in the lesson and discussed it with the micro-teacher. The micro-teacher incorporated

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<sup>1</sup>Jane Franseth, "Improving the Curriculum and Teaching Through Action Research", Education Digest, 25:11, April 1960.

the recommended changes into the lesson insofar as it was possible to do so, and a different group of students came in for the second teaching of the revised lesson. The same procedure was followed with the second group.

At the end of the second lesson and student discussion, the observers discussed the improvement of the second lesson over the first lesson. The term "micro-unit" refers to this entire procedure.

Micro-lesson. The presentation of the subject matter to the students during that phase of the micro-unit.

Micro-teacher. The teacher who presented the micro-lesson.

Observers. Faculty members, administrators, and other school personnel who were involved in the micro-units as members of the audience who watched the micro-lessons being taught. They provided the discussion of the lessons, criticised, advised, and recommended changes and suggested improvements.

#### REVIEW OF THE LITERATURE

Since micro-teaching was developed in the Stanford University Secondary Teacher Education Program in the years prior to 1963, there has not been a great deal of published material regarding the topic. The Stanford Teacher Education Program has published a compilation of all of their material regarding the subject under the title Micro-Teaching: A Description to be used



in conjunction with the summer workshops in micro-teaching at Stanford. A summary of this information will be given.

### I. THE HISTORY OF MICRO-TEACHING

The forerunner of micro-teaching, according to Rush and Allen in a paper presented at the Santa Barbara Conference on Teacher Education of the Ford Foundation on April 30, 1964, "was an exercise referred to as a demonstration teaching lesson, in which an 'invented' game was taught by all interns at the outset of their training to a group of role-playing students."<sup>1</sup> It was designed as practical experience shock treatment for those prospective teachers who believed that all that was needed to become a teacher was to know the subject well.

In addition to the demonstration teaching lesson, the trainees participated in a program at regular summer high schools as observers and teaching aides. This procedure, although it provided an opportunity for pre-internship practice, had some limitations in variety, depth, and evenness of the experiences available. Micro-teaching was developed as an attempt to overcome some of these limitations.

After pilot application of the micro-teaching clinical procedures, in the summer of 1963, trainees were randomly assigned to two groups, half given the standard observation and teacher aide experience, and the other half, concentrated training in the micro-teaching clinic<sup>2</sup>, according to Rush and Allen.

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<sup>1</sup>Robert N. Rush and Dwight W. Allen, "Micro-Teaching: Controlled Practice in the Training of Teachers", Micro-Teaching: A Description (Stanford University, 1967), p. 4.

<sup>2</sup>Ibid.

The thirty interns who participated in the clinic did not participate in the observation and teacher aide program and related activities as did the other interns. Otherwise, their training was the same. Before entering training, these thirty interns were required to demonstrate their "raw" teaching skill before a supervisor and a video-tape recorder. Each taught a ten-minute lesson in his particular teaching field to a group of five high school pupils. After the training and micro-unit experience stressing six different skills - establishing set, achieving closure, recognizing attending behavior, controlling participation, building instructional alternatives, and disciplining a class - each intern trainee was required to demonstrate his teaching competence before a class of ten pupils in a fifteen-minute lesson.

The findings of this clinic experimentation showed that

Candidates trained through micro-teaching techniques over an eight-week period and spending less than ten hours a week in training performed at a higher level of teaching competence than a similar group of candidates receiving separate instruction and theory with an associated teacher aide experience--involving a time requirement of between twenty and twenty-five hours per week.<sup>1</sup>

In addition, the intern's performance in the micro-teaching clinic predicted the candidate's subsequent classroom performance, and it showed a significant increase in the candidate's accuracy in his self-perception of his teaching performance and his ability to identify his weaknesses and his strengths.

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<sup>1</sup>Ibid., p. 5.

Since this first micro-teaching clinic in 1963, Stanford has continued the program, using micro-teaching primarily as a student teacher training device.

Although the concentration has been on training teachers, micro-teaching has a great deal to offer education in the realm of in-service education. Dr. Dwight W. Allen, associate professor of education at Stanford University, in his article "Micro-Teaching: A New Framework for In-Service Education" suggested that it can be used successfully for teacher improvement, as a trial framework for team presentations, as a site for trial of instructional level, for pre-employment prediction, for training supervisors, and for continuing the supervision and evaluation of beginning teachers.

Teacher improvement. Micro-teaching provides experienced teachers, as well as beginning teachers, with an opportunity to gain new information about their teaching in a relatively short time and helps them to see their own teaching abilities and behavior in a new light.

Dr. Allen said,

Micro-teaching may therefore serve a dual purpose; it may be utilized in a diagnostic sense to ascertain specific problems in presenting curriculum, and it may be used in a evaluative sense to rate total performance through the use of immediate student feedback. Previous experiments have shown that student ratings of teacher performance are more stable than other types of evaluation.

Experienced teachers may gain new insights through adaptation of the micro-teaching model. Under the present framework, if a teacher wishes to try a new approach in a particular lesson, he must wait until the following year to test alternatives to that lesson. In micro-teaching, the teacher can experiment with several alternatives with a limited number of students each time, with the opportunity for immediate evaluation and additional trials. Following

this limited application, the plan then can be presented to the classroom. In this way, teachers may experiment with new methods and new content without the risk of defeating student learning and with much more satisfactory timing.<sup>1</sup>

Dr. Allen stated that micro-teaching experiences can provide an effective stimulus for the improvement of teacher performance. He said,

The most effective teachers attain a high level of performance early in their careers. Unfortunately they rarely have the stimulus to further increase their competence. Providing them with an opportunity to try new ideas easily and without risk to student learning can be an important asset to professional development.<sup>2</sup>

Micro-teaching as a trial framework for team presentations.

Teachers within a department can work together to present an idea or a new technique in content or mode of presentation to the remainder of the department. Several departments might expand this experiment to facilitate developing interdisciplinary curriculums.

Micro-teaching as a site for trial of instructional level.

Frequently instructional material is taught at a particular level because of tradition. Micro-teaching offers an opportunity to experiment to find at what level material is most effectively and efficiently taught. Dr. Allen reported on an experiment particularly designed to test instructional level of material. He stated,

In Jefferson County, Colorado, a lesson was developed for fifth and sixth-grade students in science. In a trial of this lesson in a micro-teaching situation, it was dis-

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<sup>1</sup>Dwight W. Allen, "Micro-Teaching: A New Framework for In-Service Education", Micro-Teaching: A Description (Stanford University, 1967), p. 2.

<sup>2</sup>Ibid.

covered that second-grade students caught on to this lesson faster than did older students. Micro-teaching provides good opportunity for such quick comparisons.<sup>1</sup>

Micro-teaching for pre-employment prediction. Requiring a teaching applicant to teach a micro-unit before an evaluation committee would permit the teacher to be rated under "live" conditions instead of forcing the school system to rely solely on recommendations or grade-point average.

Since the structure of the micro-unit enables frequent, short but complete, observations of a teacher, it would also be possible to use micro-teaching as a method of evaluating current employees for possible promotion.

Micro-teaching for training supervisors. Under the present system of teacher supervision, most teachers are observed usually for one full class period followed by a teacher conference. This is particularly true for the beginning teacher. Since the supervisor making the suggestions to the teacher in the conference very seldom returns for an observation follow-up, there is no way to evaluate the application of supervisory suggestions until months later if at all.

With micro-teaching the observation is brief followed by a conference and another immediate observation. During the conference in the micro-teaching situation, the teacher can absorb both the students' and the supervisor's suggestions for improvement. In the second re-teach lesson, the supervisor is readily able to observe the improvement of the lesson and the understanding of the suggestions on the part of the teacher.

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<sup>1</sup>Ibid., p. 3.

Dr. Allen suggested other areas related to supervision where micro-teaching would be used as an effective tool.

There are many facets of supervision that can be studied, using the micro model: testing and looking at alternatives for supervision; varying the time and length of visits; letting teachers select the time for supervision; experimenting with the concept that the quality of supervision improves with a reduction in the number of conference suggestions; experimenting with or without video-tape; studying and enumerating the skills of teaching (identifying specific training protocols); using new materials; distinguishing between behavioral objectives and pious hopes; improving the ability to diagnose and state behavioral objectives; and developing instructional techniques.<sup>1</sup>

Micro-teaching for continuing the supervision and evaluation of beginning teachers. Since micro-teaching permits concentration on a limited number of skills at one time, the beginning teacher can have the complexities of teaching simplified in a micro-teaching situation. If his evaluation shows that he is deficient in certain teaching skills, he can concentrate on those in subsequent micro-units. This enables him to have a greater amount of practice within a limited period of time on the skills which most need developing.

With the use of video-tape in filming the micro-lessons of experienced teachers, the teachers have an opportunity to view themselves. This in itself is a valuable and revealing experience for them.

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<sup>1</sup>Ibid., p. 5.

When video-tape is used to film the micro-lessons of beginning teachers, it makes it possible for several judges to evaluate and re-evaluate a single performance, even though their schedules might not permit them to be present at the actual teaching. As a device to aid the beginning teacher in getting the adequate guidance and supervision necessary to develop good teachers, micro-teaching seems to offer valuable assistance to the total educational program of the secondary schools.

#### DESCRIPTION OF THE RESEARCH

Three separate micro-unit demonstrations were given for four different departments over a period of  $\frac{1}{2}$  months at Manhattan Junior High School during the 1966-67 school year. The departments involved were English, social studies, and mathematics and science combined. The procedure was basically the same in each case.

Approximately three to five days before the unit was to be presented, a mimeographed sheet describing micro-teaching and its purposes was given to each departmental member who was to be involved as an observer to help prepare him for the demonstration. The sheet gave the time, the place, the name of the micro-teacher, a brief description of the procedure, some basic purposes and goals of micro-teaching, and what would be expected of the observer. This preliminary information may be found in Appendix A.

Participating students were taken from volunteers from the first micro-teacher's classes. No attempt was made to match the

groups, although in each group it happened that there was about an equal balance of superior, average, and below average students. The I.Q. range, according to school-administered Stanford Achievement Tests, was from 89-113. There were six or seven students in each group. Before the actual unit, the students to be involved were given a brief oral explanation of what micro-teaching was and how the procedure would operate. They were told what the teaching subject would be, but not the nature of the lesson. Students were provided with name tags with their first names to assist the micro-teacher in conducting the group discussions and the observers in identifying the students for later discussion.

The first and third micro-teaching demonstrations were held in the junior high library and the second one was held in a classroom. All three were recorded on video-tape.

In each of the three demonstrations the observers sat toward the back of the room. The first group of students entered, sitting in a small group around and facing the micro-teacher. The lesson was taught. The micro-teacher left the room while the students discussed their reactions toward the lesson. This discussion was led by one of the observers chosen beforehand and prepared with a set of six prescribed questions to structure the discussion. These questions are in Appendix B. Students were permitted to contribute other reactions, however, as well as answers to these questions which were specifically asked. The student discussion was not video-taped. It was assumed that the students would feel freer to comment if they knew



that their discussion would not be seen by the micro-teacher at a later date. However, another observer in the audience did take notes of students' comments. The students were not identified in the notes by name.

At this time, the observer-recorder in the audience read back the students' reactions to the questions and the other observers contributed other comments and feelings which the students had expressed if not covered completely by the observer-recorder. Following the discussion by the pupils, the teacher began making their own suggestions for improvements and changes which they thought the micro-teacher could make to improve the lesson.

The micro-teacher made either mental or written notes of these suggestions and during this time incorporated as many of the changes as possible into the lesson. When the group decided that it had exhausted its suggestions, the new group of students entered. The lesson was taught for the second time with the micro-teacher making as many of the recommended changes and improvements as he could. The same initial procedure was followed. The micro-teacher left the room, the students discussed their reactions to the lesson, the students left, the micro-teacher returned, the observer-recorder recounted the students' comments, and then the teachers discussed how they regarded the second lesson. They were concerned whether or not there was improvement over the first lesson, how the incorporated changes had worked, whether or not the changes had been made as suggested, and their general feelings about the value of the technique.

Following the phase of the micro-unit just discussed, a short questionnaire was given to the observers. They were not required to sign their questionnaires, although some did. The questionnaire is in the Appendix C. The micro-teacher was asked to fill out a sheet on his reaction to the micro-teaching experience and turn it in either then or the following day. It was desirable that all reactions be given while they were still fresh in the participants' minds. The Micro-Teachers' Evaluation can be found in Appendix D.

The micro-units were video-taped by staff members of the College of Education, Kansas State University, with the exception of the portion which involved the discussion on the parts of the participating students. As stated previously, their unfilmed comments were recorded by an observer in the group.

The micro-units were used primarily as demonstration units, intended to inform departmental members of the use of the new technique for in-service teacher improvement and to encourage departmental members to try teaching a micro-unit to improve their own teaching.

#### I. THE FIRST MICRO-UNIT DEMONSTRATION

The English micro-unit. The first micro-unit was on the use of the card catalog and filing system in the library. It was presented by the first micro-teacher, a classroom teacher of eighth grade English, who shall subsequently be referred to as Teacher 1. The lesson was presented on January 11, 1967, to members of the English department at Manhattan Junior High School. Thirteen observers were present. As the first experimental demonstration, the micro-unit ran considerably longer than the other two.

First lesson content. The first lesson gave a brief account of the development and use of the library filing system and the arrangement of the library. Each student was given a card catalog drawer, a pad of paper and a pencil, a bookmark with the Dewey Decimal System on it, and a set of ringed cards.

The ringed cards were duplicates of cards actually in the school card catalog. The first three were the same on all sets, an author card, a title card, and a subject card for a fiction book. The next three were also all alike and were for a non-fiction book. The final card, a green one, contained a set of questions, different for each student, the answers to which could be found in the card catalog drawer in front of the student. The assignment card asked students to demonstrate skills covered in the lesson by using the card file in front of them. As they found the answers they were to write them on the pad of paper provided for this purpose.

When each had completed the first part of the assignment, he was instructed to turn over the card and check his answers with the correct ones which had been written on the back of the assignment card. In addition, the assignment card instructed each student to find the card for a particular title which he was given for two books, a fiction book and a non-fiction book. He was to write the author's name for the fiction book and the call number for the non-fiction book. These cards, too, were available in the drawer in front of the student.

After locating this information, he was instructed to go to the shelves and locate the books and bring them back to the table. These books had been placed correctly on the shelves immediately prior to the teaching of the micro-unit so that they would definitely be in the correct places. They were returned to the correct places by the librarian before the teaching of the second micro-unit. This concluded the first micro-lesson.

Student discussion. Student response to the oral questioning while Teacher 1 was out of the room indicated that they had understood the purposes of the lesson. They stated that they had learned how to use the card catalog, how to find books on the shelves by learning how the numbers were arranged in the library, how to use many different categories that they hadn't known existed, and how to find the fiction books. All agreed that they had enjoyed the lesson and found it interesting. One suggested that the lesson could have been improved by explaining the numbers on the books themselves by showing them on the binding and explaining what these numbers meant and where such corresponding numbers would have appeared on the card catalog card. One commented that a teacher other than his own should have been used.

Observer discussion. The student participation in finding books on the shelves was the most time consuming. The whole lesson took between twenty-five and thirty minutes. Since these lessons were taught after school, it was obvious that this was too long. The only major suggestion made by the teachers was to eliminate the teaching of fiction books at the same time as teaching non-fiction, and limiting the micro-lesson to only non-fiction books in the card catalog. This was done in the second

teaching. A majority of those making suggestions also suggested that Teacher 1 slow down the oral delivery rate of speech and allow more time for student participation before students began working with the card file drawers. Teacher 1 explained that she had hurried in the interest of shortening the time consumption which was greater than she had expected. An attempt was made to talk slower in the second lesson.

One observer suggested that it would be better to teach in a classroom situation rather than in the library. It was not possible to incorporate the suggestion into the unit and the majority of the other observers did not agree with the suggestion. They commented that it was desirable to teach the library unit in the library.

The second lesson. The second library unit was taught making the changes indicated previously.

Group 2 Student Discussion. Group 2 students verbally expressed their understanding of the purposes of the lesson by saying it was "how to use the catalog and find books." All agreed that they had understood the purpose. They said that they had learned how to find things in the library faster, how the card catalog worked, and how the numbers progressed around the library. They stated that they had enjoyed the lesson and found it interesting. One said, "The subject isn't interesting, but she (Teacher 1) told it in an interesting way." One said he would have liked to have learned about fiction books as well as non-fiction.

Observer Discussion of group 2. A majority of the teachers expressed the attitude that the second micro-unit was a definite improvement over the first. They deemed that teaching only non-fiction books in the amount of time available for a micro-lesson was desirable. They did not believe that the teacher's rate of oral delivery had been slowed sufficiently. They expressed surprise as to what a difference their indicated changes made in the teaching of the lesson.

Results of the Micro-Unit Evaluation Questionnaire for micro-unit 1. On the Micro-Unit Evaluation Questionnaire, thirty-three per cent of the observing teachers who responded thought that the first lesson in general was excellent, fifty-eight per cent thought it was good and nine per cent thought it was average. Of those responding, fifty per cent thought the second lesson was excellent and fifty per cent thought the second lesson was good.

Fifty per cent thought that the students understood the goals of the lesson at the beginning of the lesson and fifty per cent thought that they understood it moderately well. However, fifty-eight per cent believed that the students understood the goals of the lesson at the end of the lesson and forty-two per cent believed that they understood it moderately well.

In response to the question regarding student participation, twenty-five per cent stated that there was a large amount in the first lesson, forty-two per cent said that there was a little amount, and thirty-three per cent said that there was very little. In the

second lesson, fifty per cent stated that the amount of student participation had increased and fifty per cent believed that there was no change.

Eighty-three per cent reported that the recommended changes by others had been implemented and seventeen per cent said that they had been partially implemented. Of the observing group, forty-two per cent had recommended changes in the first lesson and fifty-eight per cent had not. Thirty-nine per cent stated that they believed that their recommendations had been carried out and seven per cent thought that they had been partially carried out. The rest had made none. Of the total observers, thirteen for this particular micro-unit, fifty-four per cent stated that the changes had improved the lesson a good deal and forty-six per cent thought that it had improved the lesson a little.

In response to whether they thought that the micro-unit could be a useful departmental tool for teacher improvement, seventy-seven per cent said yes and twenty-three per cent were undecided.

The majority believed that in order to improve the micro-unit technique for use in the English department, it should be shortened. Two observers expressed basically what others mentioned as well. One said, "I don't know about improvement. Selecting suitable material seems, to me, to be the important factor. The idea has real value, I think."

The second observer said, "Shorten it somewhat. Try to make the entire thing (student work and all) about 15-20 minutes. Possibly

teach a less complicated lesson. Encourage the audience to be more critical--not hesitate to criticize."

Another observer expressed a different view toward the unit. He said, "The whole thing is too canned. It's hard to be objective or critical about such a demonstration. Students will never give criticisms of any depth about their own teacher. (I wouldn't either)"

Generally speaking, these comments summed up the other expressed feelings of the observers. They seemed to believe that the micro-unit approach could not help being somewhat canned and artificial. This was one objection. The second major comment for improvement was that the micro-lessons needed to be shorter and deal with one or two major concepts rather than trying to encompass too much. As indicated by the response to the question regarding the micro-unit's value as a useful departmental tool for teacher improvement, seventy-seven per cent answered that it was worthwhile, while twenty-three per cent were undecided. None thought that it was not a useful new method. Despite recognition of its limitations, the English department concluded that it could be a useful device for in-service improvement of teaching technique.

Micro-teacher final evaluation. Teacher 1 was enthusiastic about the possibilities presented by the micro-teaching experience. In her written response to the final evaluation question, "What is your reaction to the micro-teaching technique?" she answered,

I think that there is definitely a need for planned, supervised improvement of teaching techniques and approaches after practice teaching is finished, as an in-service



training program. Micro-teaching seems to me to be a step in the right direction toward providing this kind of opportunity for improvement.

As my unit was the first case of micro-teaching at Manhattan Junior High, I felt that there were some problems which others observing the unit could avoid in later micro-teaching. I had no previous criteria by which I could judge the appropriate length of the lesson, nor did I have any idea of how long it would take for the observers to comment. Both ran much beyond the estimated length.

Consequently, the first lesson had to be shortened considerably before it was taught the second time. Even with the reduction in the lesson, I felt that the whole experiment ran too long for maximum enthusiasm of the group.

Since I did teach a new lesson which I had not tried before, I tried to encompass too much material. The student participation part took longer than I had anticipated that it would. However, I think it is highly desirable to teach a new lesson. I felt I was more flexible in adjusting the lesson and in making the recommended changes before I taught it the second time than I might have been had it been a familiar lesson. It gave me an opportunity to try out a new idea, a new method of teaching, which I plan to incorporate into my lesson plans for next year on regular class scale. In trying a new lesson, I had the advantage of constructive criticisms on my technique and at the same time I had an opportunity to widen the scope of my material before I tried the idea on a whole class.

Another way in which a double benefit would be obtained from micro-teaching would be to teach a micro-lesson which you have taught in class which does not go the way you would like it to go or with which you are not satisfied. The rest of your department or observer group may be able to suggest remedies in a truly useful and utilitarian sense, while at the same time they can make suggestions about your method, presentation, lecture and discussion handling abilities, and unconscious habits which you might not notice or correct on your own.

In addition, when the micro-teaching is filmed on video-tape, there is a tremendous value in getting to see yourself on film. Self-criticism is one very strong point in favor of the lesson.

I was extremely pleased at the response of my audience. I had done some groundwork in preparing them for what micro-teaching was and intended to accomplish, and I had expected more reluctance to be impressed with or enthusiastic over a new innovation in teaching improvement than I found. They were patient, helpful, constructively critical, interested in asking questions about micro-teaching, and willing to participate. I feel that the success of micro-teaching depends in great degree upon the ability of the audience's willingness to contribute to the discussion. I was very pleased with the audience's reaction to this first micro-unit.

In my estimation, micro-teaching can be used fruitfully within a department to give master or professional or career teachers an opportunity to demonstrate ideas or techniques to the rest of the department, to try out untried ideas on a small scale, and as a place where the less experienced teacher can be guided in the improvement of his teaching by the more experienced teachers.

I feel I learned a lot from this experience, and I am enthusiastic about what micro-teaching has to offer my department for teacher improvement and the sharing of ideas.

Suggestion. As a result of this micro-unit, Teacher 1 was approached by one of the observers and asked if she (the observer) might have a sample set of the ringed card file cards used in the micro-unit to prepare enough sets over the summer to use with her whole class in teaching the card catalog system in the fall. Although it was not the intention of this micro-unit to demonstrate a new teaching idea or approach to the subject matter, the lesson was one which Teacher 1 had not taught before and was an experimental idea for her as well. Teacher 1 also wanted to try out the effectiveness of this kind of approach in teaching library skills, and as a result of the demonstration, at least two English teachers plan to use the micro-unit demonstration as the basis for their teaching with their regular classes in the fall of 1967.

The comments of Teacher 1 are self-explanatory with one exception. Teacher 1 says, "In addition, when the micro-teaching is filmed on video-tape, there is a tremendous value in getting to see yourself on film. Self-criticism is one very strong point in favor of the lesson."

In the interest of limiting time consumption during the actual micro-teaching experiment, the film was not replayed for the audience of observers. It had been intended that the tape of the first lesson would have been viewed immediately after the students left the room and before the teachers discussed it with the micro-teacher. Because the lesson was taught after school, it was not possible to take the time to re-run the video-tape. However, the micro-teacher did remain afterwards to see the tape on the monitor. This viewing was done before her final evaluation of the experience was written, but it was completed after the entire micro-teaching session had been accomplished and the students and observers had gone.

## II. THE SECOND MICRO-UNIT DEMONSTRATION

The social studies micro-unit. The second micro-unit on "The American Frontier" was taught on March 14, 1967, to the social studies department with ten observers present. It differed from the first and the third micro-units in that it was taught in a classroom rather than in the library. Students were seated in regular desks and the blackboard was used in the course of the lesson. Teacher 2 was an administrator who had seen micro-teaching used in Jefferson County, Colorado.

He had his teaching experience in social studies. The last year that he taught was in 1960-61.

First lesson content. Briefly, the lesson dealt with the concept of the American frontier and its push westward. The changing face and scope of the frontier was explained and then expanded to include a variety of frontiers including space, medicine, and knowledge or the concept of abstract frontiers.

Teacher 2 began the lesson by eliciting student definitions of what "frontier" meant to them, and then he asked one student to find the dictionary definition and read it. By drawing on student knowledge of colonial America, Teacher 2 roughly sketched a map on the board, and from student contributions of social, economic, and physical influences, showed how the frontier expanded to the west. He then began enlarging on the term by asking whether there were any frontiers left for the modern man to explore. He had about twenty to twenty-five books to show on various subject matter frontiers which he showed as students mentioned them. This concluded micro-lesson 2.

Student discussion. When questioned orally after Teacher 2 had left the room, Group 1 agreed that they had understood the purpose of the lesson and that they had enjoyed it and found it interesting. One student said, "I found that 'frontier' doesn't just mean 'pioneers' but that it means all kinds of frontiers."

Another offered that it made him "think more about frontiers in a new way." Several mentioned that the examples and illustrations were helpful in assisting their understanding. The only suggested improvement that Group 1 made was that Teacher 2 should talk louder.

Observer discussion. There were ten observers for this lesson. Half of the observers suggested that Teacher 2 should strive for more student participation. They felt that he should, as one observer put it, "Make students talk; also participate--don't just let them fill in blanks--but THINK."

One suggested talking louder. One recommended that he should explain in his introduction better what he was trying to accomplish in the end. One thought the micro-teacher should give the books to the students to handle and drive home the point about "idea frontiers." Elaborating on this last suggestion, another observer suggested that Teacher 2 try to lay the groundwork to a greater extent at the beginning of the lesson which would later lead the students into going more easily from the concrete, specific definition of frontier as it applies to American history to the more abstract, generalized concept of all kinds of mental as well as physical frontiers. It was also suggested that he write the term on the board at the beginning when he calls for student definitions of the word in the second lesson.

During the observer discussion, Teacher 2 confessed to feeling quite nervous at the beginning of the lesson. He was an administrator who had not been in the classroom as a teacher for six years prior to this experience. He stated that as the lesson progressed he was able to forget about the observers and get "involved" in the teaching of the lesson. He suggested that perhaps his discomfort transmitted itself to the students insofar as their responsiveness and voluntary participation was concerned. Both Teacher 2 and the observers agreed

that it would be desirable to spend a little more time at the beginning of the lesson in putting the students at ease.

The second lesson. The second lesson was taught attempting to incorporate the suggestions for improvement into the teaching. Before the actual lesson began, Teacher 2 visited and joked with the students, examined name tags, and attempted to get acquainted with the students.

Group 2 student discussion. The second group of students stated that they had understood the purpose of the lesson and explained what they thought the purpose of the lesson was to the satisfaction of the observers. When asked what they had learned, one boy responded that he "had learned that a frontier is not only a thing to see but things that you learn. There are lots of frontiers--more than just the one we usually think of."

They said they enjoyed the lesson and found it interesting. One said, "I liked it that he (Teacher 2) put the stages of moving west in order. He started with a frontier that was familiar to us and then went to new frontiers."

Another said that it taught the real meaning of frontier and not just the limited meaning. Another said it showed what we could do to profit from civilization. Another said that she liked it because it gave a general summary of the westward movement and the development of the country.

Observer discussion of group 2. The observer discussion following the second micro-lesson indicated that the observers believed

that Teacher 2 had done a much better job in the second lesson in making the students feel at ease and thereby encouraging student participation. One observer, in recognizing most of the students used in both groups, commented that even though the first group seemed to have students who were better scholastically, that the second lesson went better from a standpoint of student recitation. He expressed the opinion that it was because of the improvements made by the teacher.

Results of the Micro-Unit Evaluation Questionnaire for micro-unit 2. These per cents were figured on the basis of the total number responding to each question. On the social studies unit, ten per cent thought the first lesson was excellent, sixty per cent thought it was good, and thirty per cent thought it was average. However, seventy per cent thought the second lesson was excellent, twenty per cent good, and ten per cent average. One hundred per cent thought that the amount of student participation had increased.

Forty per cent thought that the students in group one understood the goals of the lesson at the beginning of the lesson, forty per cent thought they understood them moderately well, and twenty per cent not very well. At the end of the second lesson, seventy-eight per cent of the observers answering thought that the students understood the goals very well, and twenty-two per cent moderately well.

In the first group 37½ per cent responded that there was a large amount of student participation, fifty per cent a little amount, and 12½ per cent very little.

Seventy per cent recommended changes in the first lesson and thirty per cent did not. Eighty per cent answered that the recommended changes by others were implemented completely, and twenty per cent answered that they were implemented partially. Sixty per cent responded that their recommendations were carried out, ten per cent thought they were not, and the remaining thirty per cent had made none. Fifty-six per cent stated that the changes improved the lesson a good deal and forty-four per cent said that the second was improved a little by the changes.

Seventy per cent of the social studies department observers expressed the opinion that the micro-unit could be a useful departmental tool for teacher improvement and thirty per cent were undecided.

Sixty per cent of the observers contributed ideas on how the micro-unit technique could be improved as far as the individual department was concerned. They suggested that the lessons should consume a shorter time in order to play back the video-tape before discussion of the lesson. It was also suggested that after the second lesson, the suggested improvements part of the video-tape might be played again to see whether the group felt that the suggestions had really been carried out in the second teaching.

One observer said, "The micro-unit is fine as it stands--when there is adequate participation by both students and observers."

Another saw it as a useful "aid in feeling out new methods."



One suggested its use in the classroom instead of in what this observer saw as a canned situation, artificial and therefore unyielding in approach. She suggested its possibilities for use in video-taping student teachers, each teacher for one hour, for viewing at the end of the day when the supervisor could view it with the student teacher and give more realistic and constructive comments regarding the student teacher's lesson in the actual classroom.

Still another said, "I don't know enough about it to suggest improvements, but I feel it has tremendous possibilities for teacher improvement."

Micro-teacher final evaluation. Teacher 2 was enthusiastic about his experience with the technique, as he expressed in his final written evaluation.

I found the experience very helpful and a definite aid in the teaching situation. It is certainly a value to teach before fellow teachers and it is a lot of fun, even if it also was a very frightening experience.

I taught the micro-unit with the idea of what the value would be for in-service training and experimenting with these new techniques.

It was especially helpful to teach immediately after receiving suggestions from the pupils and teachers. I also think that it is valuable training to prepare completed lessons for a short period of time. The teacher must continually keep his objectives in mind as he proceeds throughout the lesson.

Teachers can benefit from such programs by the inter-action of demonstrating ideas, materials, and techniques. I feel that it would be worthwhile for micro-teaching to be integrated into the in-service programs of all school systems. I am sure there are many ways that this can be refined and be a great benefit to pupils as well as teachers.

### III. THE TRIAD MICRO-UNIT DEMONSTRATION

The science mathematics micro-unit. The third and final micro-unit demonstration was taught on April 27, 1967, for the mathematics and science departments of Manhattan Junior High School. There were fourteen observers for this lesson. Teacher J was a vice-principal, who had witnessed a number of micro-teaching lessons at Stanford University during the summer of 1966. His last classroom teaching in science was three years ago during the 1964-65 school year.

First lesson content. The topic of this lesson was correlation, specifically the numerical expression of relationships between data through correlation. Teacher J began the lesson by writing the term on a portable blackboard in the library and asking the students if they could see any small words in the large word which might give them a clue as to its meaning.

Already appearing on the blackboard were two columns of figures representing height and weight of fifteen students picked at random. From these columns he asked the students to tell him which student was tallest and shortest, which one heaviest and lightest, and these figures were circled. Then he asked if anyone could tell him what a "graph" was. He explained the line graph which he intended to use and put the extremes of his figures on the graph.

He then asked the students to figure the median for height and the median for weight, which he put on the graph and divided it into quadrants. He asked where the first two examples in his column of figures on the board would go on the graph, and after this was determined

and entered, he put on some other random points on the graph and told the group which quadrants showed positive and which showed negative correlation.

He then told them how to total the graph entries which fell in the positive quadrants and negative quadrants, find the difference, and divide by the total number of examples which would result in a decimal fraction. He did not, however, work an example for them. He told them that a +1.0 correlation is known as a positive perfect relationship showing maximum correlation. He said that the larger the decimal, the greater the amount of correlation indicated. Figuring the graph distribution of examples by the method described earlier will result in a decimal fraction expressing the amount of correlation represented by the data.

Teacher 3 told the students that they could find sets of data themselves. As an example, he told them that they could obtain data on exercise and heartbeat rate. He passed out a form on which they could enter this data and figure correlations on their own for their own data. See Appendix E. This concluded the third micro-unit.

Before discussing the students' reactions to the first lesson, it should be pointed out that the student group consisted entirely of entirely eighth graders. Teacher 3's teaching experience in science had been with ninth graders.

Student discussion. When asked whether they understood the purpose of the lesson or not, the students indicated that they understood the direction in which Teacher 3 was going, in describing the

relationship between numbers, but they were not really sure that they had achieved the goal of the lesson. They said that they had learned the meaning of the word "correlation", how to graph, and about the ratio of data, but half of the students didn't feel that they had learned enough to figure correlation on their own.

One student said, "I got lost when he started putting the figures on the graph."

Another said, "It wasn't explained well."

Another said, "I got confused, but on the whole it got through."

They hesitated to answer when asked whether they found the lesson interesting or not. In response one student indicated that he had learned some things that he didn't know before, but another volunteered that it wasn't really too interesting. One said, "It was interesting to learn something that I didn't know, but I did get lost." The general consensus seemed to be that the lesson was confusing.

When asked how it could have been improved, several voiced the opinion that they were too unclear on the lesson to be able to make suggestions. One suggested that the list of data given on the blackboard should have been worked out to the end so that they could have seen the end result of the data given. Another suggested the use of more examples to help them understand statements made.

Observer discussion. Sixty-four per cent, or nine out of fourteen teachers, suggested changes in this first lesson. Those who did recommend changes, however, were quite verbal and made many suggestions for improvement. The observers seemed to agree that at the beginning

of the lesson there was a need to motivate the student more strongly, to reach an adequate and clear definition of the term "correlation", and to make the goals of the lesson more clear.

One observer suggested, "Give some need for solving and where it can and is used."

One suggested that Teacher 3 might "Explain the word correlation in terms of co-relation."

The majority agreed that there was need for less emphasis on the lecture technique and a need for greater student participation and the "student discovery" method.

It was recommended that he show more of the example figures on the graph and give more specific information on what was meant by  $-1$ ,  $0$ , and  $+1$ . One observer thought that Teacher 3 was assuming knowledge on the part of the students which they did not have, and he cited knowledge of graphs as an example. This observer felt that the lesson as a whole was too difficult and based on prior learning which the students did not possess. He suggested that Teacher 3 go into somewhat greater detail in the introduction to the placement of data on the graph.

The second lesson. In preparing for the teaching of the second lesson, Teacher 3 erased some of the data on the board and limited his list of height and weight to five examples. Before beginning the lesson, he said that there had been so many suggestions that he wasn't sure he could incorporate all of them into the second lesson, but that he would try.

In the second lesson, Teacher 3 endeavored to elicit greater student participation and utilize student discoveries about what they could see that certain information had in common. In attempting to do this, Teacher 3 kept pressing one student in the second group for a median figure between two extremes which had been indicated for weight. The student was confused and couldn't answer despite repeated promptings. This was later mentioned by another student in his criticism of the lesson and will be discussed more fully at that time.

Also in the second lesson, Teacher 3 asked the students what a graph was. One girl suggested that there were different types and one type was a bar graph. Teacher 3 acknowledged that there was such a graph, but that the graph he had in mind was another type, whereupon he drew the right angle basis for his line graph on the blackboard. This incident, too, was mentioned later in the observers' discussion, and will be referred to at that time.

During the teaching of the second group, Teacher 3 placed all five examples from his height-weight list on the graph. He followed this through to the end by figuring the correlation result for this data. This concluded the teaching of the third micro-unit.

Group 2 student discussion. The second group answered that they found the lesson enjoyable and interesting. Most of them felt that they had understood the purpose of the lesson, but one said, "He (Teacher 3) should have explained the purpose at the beginning. I didn't know what we were supposed to be learning until the end."

Another said he did understand the lesson, but he still didn't know what correlation was needed for and "so why bother getting the answer?"

Still another said that she didn't understand the correlation between "correlation" as a concept and the numbers that were on the blackboard.

When asked what they liked about the lesson, they just said vaguely that it was "interesting". However, one boy said that he hadn't liked it that Teacher J had put the one boy on the spot when he didn't know the answer. He said, "It's awfully embarrassing to have a teacher keep after you in front of everybody when you don't know the answer. It makes you feel awful. I think he should have gone on and let someone answer who had his hand up and knew the answer."

This same student was critical of the hand-out sheet on correlations. (See Appendix E) He said, "There isn't anything on it. I was expecting to have some problems that we could work to see if we really knew how to do it. Let's face it; it was a waste to hand these out. The only thing they'll be used for will be paper airplanes."

The others seemed to agree with this sentiment. Several indicated that they would have liked to have had an opportunity to demonstrate their understanding of how to work correlations themselves, to see whether or not they could do it.

Observer discussion of group 2. After the students had gone and Teacher J had returned, the students' comments were relayed to the

micro-teacher. His response to the last student comment was that it was his philosophy of teaching that he wanted to avoid what he termed "cookbook" teaching. He said that his intention in giving out this blank form without pre-determined data was to encourage students to gather data of their own on topics on which they were interested. He said he did not believe in having students do drill work in working problems set up by the teacher.

Some of the teachers agreed with this while others seemed to feel that if the situation is such that students can do their own collection of data and then proceed to draw their own scientific conclusions, this method is desirable. However, they pointed out that not all teaching can be done this way, and in some cases, limited drill work is necessary for setting the fundamental skills in the students' minds. They thought that it would have improved the micro-lesson had the students had an opportunity to perform by working a problem. They suggested that the obvious one would have been to let them conclude the working of the correlations for the data on the board and on the graph.

Results of the Micro-Unit Evaluation Questionnaire for micro-unit 3. Of those observers of the science-mathematics micro-teaching demonstration who answered the Micro-Unit Evaluation Questionnaire questions, eight per cent thought that the first lesson was excellent, forty-six per cent good, twenty-three per cent average, and twenty-three per cent thought it was fair. Fifteen per cent thought that the second lesson was excellent, seventy per cent good, and fifteen per cent average. Seven per cent believed that the students understood the goals



of the lesson at the beginning of the lesson, fifty per cent moderately well, and forty-three per cent not very well. Eighty-six per cent thought that the students understood the goals of the lesson at the end of the lesson and fourteen per cent thought that they still did not understand them very well.

In the first lesson, seventy-one per cent of the observers stated that there was a little amount of student participation and twenty-nine per cent thought there was very little. In the second lesson, ninety-two per cent stated that the student participation had increased, while eight per cent thought there was no change.

Sixty-four per cent of the observers recommended changes in the first lesson and thirty-six did not. Sixty-four per cent answered that the recommended changes by others were implemented in the second lesson, while thirty-five per cent believed that they had been partially implemented. Fifty-seven per cent thought that their recommendations had been carried out, seven per cent answered that they had been partially carried out, and thirty-six per cent had made no recommendations. Twenty-two per cent thought that the changes had improved the lesson a good deal, seventy-one per cent a little, and seven per cent not at all.

Fifty per cent of the observers believed that the micro-unit could be a useful departmental tool for teacher improvement, while fifty per cent were undecided. The suggested improvement in the micro-unit technique for the mathematics and science departments most commonly made, by forty-three per cent of the observers, was that the lesson would have been more effectively taught in the regular classroom rather

than in the library. This comment was further explained by saying that in the science or mathematics classroom the facilities are readily available to have the students participate in gathering their own data. Several mentioned the need for greater student involvement and participation. One observer said, "I think students should participate more-- especially in math, where they learn by doing."

One felt that the more natural situation of using the teacher's own classroom and students would eliminate the problem of assuming knowledge which the students did not possess, which had been a problem in the third micro-unit.

One observer, noting the fact that the micro-unit had been taught by an administrator rather than a classroom teacher, pointed out the need for released time in preparing a micro-unit.

Still another who was the most critical of the group of observers of the micro-unit technique itself said that it was "too canned and phony." He charged that the micro-unit technique for science fields would be able to produce adequate lecturers through this experience and the criticism and directions from fellow teachers, but that was all. He maintained that the micro-unit was just a "performance" rather than actual teaching. He felt that the micro-unit had very little to offer if a class was being taught primarily through student discovery leading to the formulation of theories.

Several, including the last observer mentioned, thought that the micro-unit was too short and that their fields needed more time for a lesson to be presented.

One observer mentioned the desirability for the micro-teacher to see himself teach by being able to view the video-tape. She felt that the micro-unit as demonstrated was limited in what it had to offer the science field, but that if such an approach were coupled with the video-tape viewing of her own teaching, its value would increase several times.

Micro-teacher final evaluation. Teacher 3's comments on his Micro-Teacher Final Evaluation Question reflected his recognition that the group of observers for this lesson had been somewhat negative toward the whole procedure.

I enjoyed the experience and I hope that more will be done with the technique. I feel that it would benefit many teachers as it teaches a person to accept and make constructive criticisms. Some teachers need to learn how to accept help and advice.

If I were to participate again as the teacher, I would try some radical approaches and not stick to just lecture-question-discussion. I would try to use small group interaction, possibly with the observers in another room. (I saw this done at Stanford last summer.) I believe that learning is best facilitated when a group attacks a problem together while being rather open about it.

I felt that the teachers present tended to look at the negative side of the approach--"micro-teaching teaches teachers how to perform; it doesn't go far enough; etc." In answer, I would say to them, "O.K.--don't ever try a new approach unless you know for sure that it is the only way or best approach." RIDICULOUS ATTITUDE ISN'T IT?

I hope that next year we can do this again--it is the most stimulating experimentation that has been done in this school since I have been here.

Summary. There were two major problems which developed with the science-mathematics micro-unit which were not anticipated in the preparation of the unit. It should be noted that this micro-unit was the only one which was taught before members of two departments, mathematics and science. While the content of this lesson was suitable to both subject areas and might be taught by either department, the method of presentation was basically a lecture-recitation type.

The mathematics department observers, generally speaking, did not find fault with this method of presentation nor with the micro-unit vehicle. On the other hand, the science department observers, used to having a laboratory at their disposal and frequently teaching by the "student discovery" method, were more critical of the micro-unit technique and the method of teaching than were the mathematics observers. The criticisms might have been minimized, if not eliminated, by separate demonstrations for the two departments.

The second problem occurred in using the combination of an administrator and students with whom he was not acquainted and who were on a different grade level than that which he had previously taught. Teacher 3, a former science teacher, had all of his teaching experience with ninth graders. The micro-unit students were eighth graders. In the course of the lesson, it became apparent that Teacher 3 had based some of his lesson on information and knowledge which the eighth graders did not possess, but with which ninth graders would have been familiar.

This could be avoided by selecting students from the micro-teacher's own classes or at least from the grade level with which the teacher is familiar.

#### IV. CONCLUDING OBSERVATIONS

All together thirty-seven observers watched three micro-units. Teacher J's observation, "I felt that the teachers present tended to look at the negative side of the approach," was not characteristic of the whole group of observers. The total response as to whether or not the observers believed that the micro-unit could be a useful departmental tool for teacher improvement showed that sixty-five per cent, or almost two-thirds of all observers, answered that it could. Thirty-five per cent were undecided as to its merits as a teacher improvement tool. However, not one of the thirty-seven observers indicated that micro-teaching would not be helpful. Such a response showed positive reaction toward micro-teaching on the part of the observers.

The most frequent observer suggestion for all three lessons was that the micro-teacher should endeavor to enlist the students in greater participation in the lesson and the subsequent suggestions as to how this might be accomplished. Evidently the majority of the observers thought that student performance, recitation, discovery, or involvement in an active way of some sort was necessary for an effective lesson.

Observer reaction showed that eighty per cent responded that the amount of student participation was increased in the second lesson, while only twenty per cent thought that it had not changed. In view of the fact that the observers tended to associate student participation with lesson effectiveness and since four-fifth of the observers stated that there was an increase in student participation, it would be assumed that they would also report an improvement in the quality of the second lesson.

Seventeen per cent of all of the observers thought that the first lesson was excellent, fifty-four per cent good, twenty per cent average, and nine per cent fair. Regarding the second lesson, forty-three per cent found it excellent, forty-eight per cent good, and nine per cent average. This shows that the observers saw a distinct raising of the quality of teaching and effectiveness of the lesson in the second presentation.

One of the observers in the mathematics-science micro-unit demonstration made the statement that "The micro-unit technique for science fields would be able to produce adequate lecturers through this experience and the criticism and directions from fellow teachers, but that is all." However, the above data seems to indicate that a large portion of the teacher improvement in the second lesson was in the leading of discussion, encouraging student participation, and in drawing out the knowledge possessed by the students to contribute to the lesson.

As one of the observers mentioned, the success of a micro-unit depends in a large measure on the willingness of the observers to participate and to criticize constructively. Of the total group of

observers, fifty-eight per cent recommended changes in the first lesson that they observed, while forty-two per cent did not. A little over half of the observers watching the micro-teacher teach, offered suggestions for the improvement of his teaching.

The three participating micro-teachers were pleased both by the quantity and the quality of observer response. They stated that the advice had been extremely helpful in improving the lessons which they taught, and all three said that there were things contributed from the group of observers which they didn't think they would have caught and improved had they been teaching in a classroom without a constructively critical audience to evaluate their teaching and suggest improvements.

As one of the micro-teachers put it,

Sometimes I am teaching a lesson which I know isn't going well, but I don't know quite what is wrong, or if I do know, I don't know what to do to correct it. I may try changes and different approaches to portions of the lesson, but I can't always tell whether or not they are improvements. That's what having an audience of experienced people does for you. Not only can they suggest things to improve the lesson which I might not have thought of on my own, but they can also give me an impartial and immediate reaction to the changes after they are made. As a matter of fact, I can think of several of my own lessons right now which I'd like to teach in a micro-teaching situation.

As this teacher indicated, the changes from the first lesson to the second lesson are important. Of the total number of observers answering the questions regarding changes on the Micro-Unit Evaluation Questionnaire, seventy-five per cent said that the recommended changes by others were implemented and twenty-five indicated that they were partially implemented. Fifty-one per cent said that their recommendations

were carried out, three per cent said that they were not, and five per cent said that they were partially carried out. The rest made none.

Forty-two per cent thought that the changes improved the lesson a good deal, fifty-six per cent stated that the lesson was improved a little, and only two per cent said that the changes improved the lesson not at all. In other words, ninety-eight per cent of the observers found that the advice offered and carried out in the micro-unit improved the teaching of the lesson at least in some measure.

All three micro-teachers were enthusiastic in the possibilities which they saw through micro-teaching for teacher improvement, and all three were ready to teach another micro-unit the following year.

Another one of the micro-teachers said that he hoped that other teachers would be interested in trying a micro-unit the following year. He said that he had been nervous about teaching in front of a group of teachers since he was an administrator and thought that they might feel that he was "up there to show them how to do it." He expressed enthusiasm for the fact that the observers were most cooperative and constructive in their advice, and positive in their reaction to the demonstration of a new technique in in-service training. He also added that the nervousness was only temporary and disappeared once he got into the teaching of the lesson. He said that while the greatest benefit would be for the classroom teacher, it was good, in his estimation, for administrators to keep in close touch with the experience of teaching. He said that even though it had been only three



years since he last taught in a classroom, he found that he had forgotten what it was really like to be in front of a group of youngsters.

It was expected at the beginning of these experiments that there might be a relationship between the participation of the observers in offering comments, advice, and changes and in their reaction to the device itself. Since perhaps the most significant single fact to come out of this experience was that none of the teachers indicated that they felt that micro-teaching was of no value to his department, data could not be separated according to those "for" and those "against" the technique. However, the data was separated according to those who made suggestions for changes and those who did not.

There were twenty-two observers who recommended changes, or fifty-eight per cent of the total. Thirteen of these, or fifty-nine per cent said that they felt the micro-unit could be a useful departmental tool for teacher improvement, and nine, or forty-one per cent, were undecided. All together there were fifteen observers, or forty-two per cent, who made no recommendations. Of these, eleven, or seventy-three per cent answered that they felt the micro-unit could be useful, and four, or twenty-seven per cent were undecided.

This was not as had been expected. A greater percentage of those not contributing advice found merit in the technique than those who did recommend changes. This may partially be explained by what Teacher 3 indicated that he felt about his audience. He believed that those who were critical of the technique were more verbally critical of his lesson.

Despite this reservation about the flexibility of the technique itself, even those who were critical of the technique, saw possibilities in it for teacher improvement.

An unexpected bit of data appeared in summarizing the percentages on the questionnaire. There was a discrepancy between the students' positive response, which was almost unanimous, when asked whether they understood the goals of the lesson or not and the teachers' response. Despite the fact that the students answered in the affirmative and demonstrated their awareness of the goals by stating them for the observers, the observers answered on the Micro-Unit Evaluation Questionnaire that thirty-one per cent believed that the students understood the goals of the lesson at the beginning of the lesson, forty-seven per cent answered moderately well, and twenty-two per cent said not very well. Forty per cent thought that the students understood the goals at the end of the lesson, fifty-four per cent moderately well, and six per cent not very well.

Even though some of the observers charged that the students would not make very perceptive or critical remarks about the micro-teacher to a group of observers, a comment not entirely without foundation, nevertheless, this lack of agreement between the students and the observers on this point, may well indicate that there is a need for the student discussion where they are given a chance to express themselves, even though superficially. It gives the micro-teacher still another point of view regarding the effectiveness of the lesson when time scarcely permits testing to evaluate student knowledge gained.

The three micro-units were intended primarily as demonstrations of the technique for the various departments. One of the Manhattan Junior High School administrators said at the beginning of the experiments that if nothing more was accomplished than to demonstrate a new technique which teachers should be informed about, it would be well worthwhile. This was accomplished to his acknowledged satisfaction.

In addition, as indicated previously, all micro-teachers expressed their gains through the experience and their eagerness to participate in teaching additional micro-units. Also mentioned earlier was the trial lesson in teaching library skills by a new technique which at least two teachers will be using during the 1967-68 school year. In view of the observer reaction to the merits of micro-teaching as a possibility for teacher improvement, it is planned at this time to continue scheduling micro-units to be taught at the junior high school during the coming year, encouraging those who witnessed the demonstrations to try teaching a micro-unit themselves. It is planned that these will be done during departmental meetings which are regularly scheduled, so as not to require additional time of the participating teachers in addition to the requirements already specified by the administration.

Another result of the micro-unit demonstrations is that the Manhattan Public School system, recognizing the value gained by giving teachers an opportunity to view themselves and their teaching on video-tape, is investigating the possibility of purchasing a video-tape unit to be used for this purpose.

It is believed that the whole project, the issuing results, and the plans to continue micro-teaching experiences during the 1967-68 school year, have made a valuable and important contribution to the in-service program of teacher improvement at Manhattan Junior High School.

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APPENDIX

## Micro-Teaching

On \_\_\_\_\_ in \_\_\_\_\_  
 will be presenting a micro-teaching unit to \_\_\_\_\_  
 The following information is offered as an introduction or explanation of micro-teaching,  
 what it is, how it will be done, and what it hopes to accomplish.

Micro-teaching is an in-service training device which is designed to improve the teacher's methods and techniques.

After practice teaching, teachers seldom have the opportunity of having their teaching observed for the purpose of constructive advice as to ways they might improve their teaching. Micro-teaching is for this purpose.

A teacher prepares a very short lesson, ten to fifteen minutes long, which is taught to a group of six or seven students in the presence of other faculty members or a whole department. The micro-teacher then leaves the room while the students discuss their reactions to the effectiveness of the lesson. This discussion is led by another faculty member. The students leave, the micro-teacher returns, the students' comments are discussed, and the teachers offer comments and constructive advice toward changes and improvements to be made in the teaching of this same lesson a second time. The micro-teacher makes these suggested adjustments.

A new group of six or seven students come in and the lesson is taught again with the changes. Once again the micro-teacher leaves while students react to the lesson. They are dismissed and the micro-teacher then returns. Students' reactions are discussed and the teacher-observers comment on the revised lesson.

The greatest value of the micro-unit is that it gives the micro-teacher an opportunity to correct or improve teaching techniques, implement these changes immediately and then see if the changes are of value and/or effective. In the normal school situation a supervisor may visit a class two or three times in a year and make suggestions to the teacher. However, when the teacher tries to follow the suggestions, no one is present to observe the effectiveness of the changes. In micro-teaching this results are immediate.

Another possible advantage of micro-teaching is that it enables departments to try out new techniques or equipment on a small scale to test workability. Individual new ideas may also be demonstrated in this manner.

Finally, after the teaching of the micro-unit is complete, the teacher-observers will be asked to fill out a brief questionnaire primarily regarding their evaluation of the success or failure of the session and its value as a teacher improvement tool.

It should be stressed that the purpose of the micro-teaching unit is to improve the quality of the teaching ability of the teacher presenting the micro-unit, guided by the advice of the experienced teachers observing the unit. It is not to demonstrate the proficiency or cleverness of the teacher. It is rather to point up areas in which improvements can be made. It is not done in the spirit of "This is how it's to be done," but rather, "Please show me how you think I can do this better." It is hoped that after one teacher has taken the initial plunge of demonstrating the technique to the department, others will be willing to prepare and teach micro-units of their own. No teacher will be required to prepare such a unit. The micro-teacher is the one who desires the greatest benefits from this procedure.

(If it is possible to work out the details, the university may be able to send their video-tape machine to film this ~~first~~ micro-unit. If so, the film will be re-run before the second group is taught so that you can see the first teaching again before making comments as to desirable changes to be made. This re-running of the film will be done if the group desires it and with time permitting.)



Oral Questions to be asked students participating in the  
Micro-Unit

1. What did you learn?
2. Did you enjoy the lesson?
3. Was the lesson interesting?
4. What did you like about it?
5. How could it have been improved?
6. Did you understand the purpose of the lesson?

Micro-Unit  
Evaluation Questionnaire

I. First Lesson -- (circle one)

1. The quality of the first lesson in general was  
 excellent    good    average    fair    poor
2. Did you feel the students understood the goals of the lesson at the beginning of the lesson?  
 very well                    moderately well            not very well
3. Did you feel the students understood the goals of the lesson at the end of the lesson?  
 very well                    moderately well            not very well
4. Was there adequate student participation?  
 a large amount            a little amount            very little
5. Did you recommend changes in the first lesson?  
 yes            no

(If your answer above was "yes," answer the following briefly.)

What were your recommendations?

II. Second Lesson -- (circle one)

1. The quality of the second lesson in general was  
 excellent    good    average    fair    poor
2. Was the amount of student participation changed?  
 increased    no change    decreased
3. Were the recommended changes by others implemented?  
 yes    no    partially
4. Were your recommendations carried out?  
 yes    no    partially    none
5. Did the changes improve the lesson?  
 a good deal    a little    not at all

III. General Evaluation -- (circle one)

1. Do you think the micro-unit could be a useful departmental tool for teacher improvement?  
 yes            no            undecided

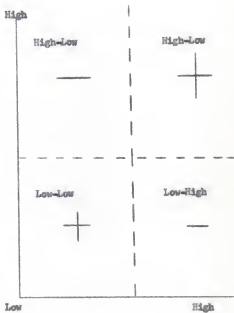
(Answer the following question briefly.)

2. In what ways could the micro-unit technique be improved as far as your department is concerned?

Micro-Teacher  
Final Evaluation Question

What is your reaction to the micro-teaching technique?

## APPENDIX B

Correlations

THREE ACTION RESEARCH DEMONSTRATIONS USING MICRO-TEACHING  
AS A METHOD OF IN-SERVICE IMPROVEMENT OF TEACHING  
AT MANHATTAN JUNIOR HIGH SCHOOL

by

BEVERLY ELAINE RIDGELY TROLLMAN  
B. S., Kansas State University, 1958

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AN ABSTRACT OF A MASTER'S REPORT

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

College of Education  
KANSAS STATE UNIVERSITY  
Manhattan, Kansas

The purpose of the action research discussed in this report was to introduce the micro-teaching technique to four Manhattan Junior High School academic departments as a method of in-service improvement of teaching.

Three micro-teaching demonstrations were given for four different departments--English, social studies, and mathematics and science combined.

In each demonstration, the micro-teacher taught a short lesson of approximately ten to twenty-five minutes to a group of six or seven students. Members of the various departments observed the teaching. The micro-teacher then left the room while the students discussed their reactions to the lesson. The students left and the micro-teacher returned. The observers discussed the lesson, recommended changes, and criticized content and technique.

The micro-teacher incorporated as many of these recommendations as possible into a revised lesson. A second group of students was sent in, and the revised lesson was taught.

Again the students discussed the lesson during the absence of the micro-teacher. When the micro-teacher returned, the observers compared the two lessons, whether the second was an improvement over the first, and whether the micro-teaching technique resulted in teacher improvement or not.

The observers further expressed their reactions to the technique via a questionnaire, and the micro-teacher wrote a page on his reaction to the experience.

It was concluded that the technique was a valuable aid in the in-service improvement of teaching. The observers felt that it aided the teacher in motivation, improvement of content organization, leading student discussion, and using a variety of teaching methods.