

January 1982

Use Of Student Perceptions In Facilitating Improvement In Classroom Environment

Barry J. Fraser
Macquarie University

Teresa Seddon
Macquarie University

Jeffrey Eagleson
Macquarie University

Follow this and additional works at: <https://ro.ecu.edu.au/ajte>



Part of the [Educational Assessment, Evaluation, and Research Commons](#), and the [Teacher Education and Professional Development Commons](#)

Recommended Citation

Fraser, B. J., Seddon, T., & Eagleson, J. (1982). Use Of Student Perceptions In Facilitating Improvement In Classroom Environment. *Australian Journal of Teacher Education*, 7(1).
<http://dx.doi.org/10.14221/ajte.1982v7n1.3>

This Journal Article is posted at Research Online.
<https://ro.ecu.edu.au/ajte/vol7/iss1/4>

Notes

A copy of the instrument utilized for this study can be requested from F. Wm. Sesow, 105C Henzlik Hall, The University of Nebraska-Lincoln, Nebraska 68588, U.S.A.

References

- ADELMAN, S. I. Theory into practice: Not for methods only. *The Teacher Educator*, 1978, 14, 2-9.
- LACEFIELD, W. E., & MAHAN, J. M. A longitudinal study of attitude change and teacher training. *Educational Research Quarterly*, 1980, 5, 2-12.

USE OF STUDENT PERCEPTIONS IN FACILITATING IMPROVEMENT IN CLASSROOM ENVIRONMENT*

Barry J. Fraser, Teresa Seddon, and Jeffrey Eagleson
Macquarie University

Probably the best known and most widely used technique for studying teaching in order to improve it is classroom interaction analysis (Dunkin & Biddle, 1974; Peterson & Walberg, 1979). The coding of classroom communication (usually verbal) according to category schemes has been used extensively and successfully in preservice and inservice education as a way of making teachers aware of and subsequently improving their own teaching. Used for this purpose, interaction analysis has provided teachers with a method of obtaining specific feedback on their classroom practice and a firm basis for reflection, discussion, and improvement related to their teaching.

As an alternative to interaction analysis, student perceptions of their classroom environment can provide teachers with feedback on their teaching as a basis for guiding improvements in classrooms. Despite the potential usefulness of student perceptions for this purpose, surprisingly little attention has been given to exploring how educators might use feedback based on environment assessments to facilitate environmental change. The purpose of this paper is to describe a study in which information about students' classroom environment perceptions were used successfully as a basis for guiding improvements in the environment of a particular classroom. Prior to reporting the study itself, attention in the following sections is focussed briefly on (1) related literature, (2) classroom environment research, and (3) the instrument used in the present work to assess student perceptions of classroom environment (namely, the Individualized Classroom Environment Questionnaire).

Related Literature

The amount of literature dealing directly with the use of student environments is scarce. Although Fraser (1981a) discusses ways of using environmental assessments to guide systematic attempts to improve classroom environments, the present paper provides the first published report

*Based on a paper presented at Annual Meeting of American Educational Research Association, Los Angeles, April 1981.

of the application of these methods. Nevertheless, there exists some interesting literature which is related indirectly to the task of improving classroom environments.

British curriculum workers such as Stenhouse (1975) and Elliott (1976-77) have advocated that teachers should adopt an exploratory, self-reflective, self-monitoring stance on their own teaching. In particular, these workers recommend a mode of action research in which teachers deliberately and systematically reflect upon, discuss, and question their own classroom practice as a basis for improving their teaching. Also the American curriculum theorist, Joseph Schwab (1969), emphasizes the need to incorporate the learning milieu (or environment) into deliberations about classroom practice.

The literature describing classroom interaction analysis (mentioned earlier in this article), microteaching, and teacher self-evaluation also provides valuable sources of ideas about the use of feedback to teachers as a means of promoting improved classroom practice. Usually microteaching involves the recording on videotape of a teacher's presentation of a teaching episode to a small group of students, followed by feedback involving the teacher, supervisors, and peers (Brown, 1975; Olivero, 1970). Recently, several writers have advocated that teachers should play a more prominent role in the self-evaluation of their own work (Bodine, 1973; Davis, 1980; Harlen, 1978). When using self-evaluation procedures, teachers employ various feedback techniques (e.g., use of rating forms, observation by colleagues) to identify areas in which teachers' classroom behaviours differ from what they consider ideal.

Although no prior study has used environment perceptions in attempting to improve school classroom environments specifically, analogous and valuable work has been attempted in other settings. For example, profiles of milieu inhabitants' perceptions have been employed successfully in facilitating changes in psychiatric hospital wards (Pierce, Trickett & Moos, 1972), a college classroom (DeYoung, 1977), an adolescent residential care centre (Moos & Otto, 1972), and an alcoholism treatment program (Bliss, Moos & Bromet, 1976). Moreover, most of these studies have involved fundamental procedures which are potentially applicable to classroom settings. Basically the procedures involve, first, assessing individuals' perceptions of their actual and preferred environment, second, examining profiles of actual and preferred scores in order to identify actual-preferred discrepancies, third, concrete planning of specific methods

by which the environment might be changed in order to align the actual environment more closely with the preferred environment, and, finally, a reassessment of perceived environment in order to determine the extent to which attempts at environmental improvements were successful.

Classroom Environment Research

Over the previous ten to fifteen years, considerable interest has been shown internationally in the conceptualization, measurement, and investigation of perceptions of psychosocial characteristics of classroom learning environment. The field of classroom environment is now firmly established through recent key publications including two books (Moos, 1979; Walberg, 1979), a monograph (Fraser, 1981b), a meta-analysis (Haertel, Walberg & Haertel, 1981), key reviews (Walberg & Haertel, 1980; Fraser & Walberg, 1981), and a guest-edited issue of an evaluation journal (Fraser, 1980a).

The two perceptual instruments used most extensively in prior research are the Learning Environment Inventory (Anderson & Walberg, 1974) and the Classroom Environment Scale (Trickett & Moos, 1973). These instruments include scales such as Competition, Formality, Difficulty, and Rule Clarity. Extensive use of these instruments in developed and developing countries has established the predictive validity (i.e., ability to predict student cognitive and affective outcomes) and the criterion validity (i.e., ability to differentiate between classrooms which follow different curriculum materials, which vary in grade level, etc.) of students' classroom environment perceptions. It is highly desirable that this recent emphasis on classroom environment research should now have some practical application in facilitating environmental change.

Individualized Classroom Environment Questionnaire

The classroom environment instrument employed in the present attempt to facilitate environmental improvement was the Individualized Classroom Environment Questionnaire (ICEQ), which has been described in detail in a previous article in this journal (Rentoul & Fraser, 1981). This instrument differs from others in that it assesses dimensions (namely, Personalization, Participation, Independence, Investigation, and Differentiation) which differentiate individualized and conventional classrooms. Another feature which distinguishes the ICEQ from most other classroom environment instruments is that it has four distinct forms which

measure student perceptions of actual classroom environment (Student Actual form), student perceptions of preferred classroom environment (Student Preferred form), teacher perceptions of actual classroom environment (Teacher Actual form), and teacher perceptions of preferred classroom environment (Teacher Preferred form). The preferred forms are concerned with goals and value orientations and measure perceptions of the classroom environment ideally liked or preferred. Furthermore, having these separate actual and preferred forms enabled the ICEQ to be used in the present study to identify changes needed to align the actual classroom environment with the preferred environment as perceived by students.

The initial development of the ICEQ (see Rentoul & Fraser, 1979) was guided by several main criteria. Dimensions were chosen to characterize the classroom learning environment described in the literature of individualized education, including open and inquiry-based classrooms. Individual questionnaire items and overall dimensions were considered salient and suitable by a group of educational researchers, practising teachers, and secondary school students. Preliminary versions of the scales were modified to form a final version by application of item analysis techniques to data collected from several different samples of teachers and students.

The final version of the ICEQ contains 50 items, with each of the five dimensions being assessed by 10 items. Item wording is identical in all four forms of the ICEQ, but a different set of instructions is used for each form. Each item is scored on a five-point scale with responses of Almost Never, Seldom, Sometimes, Often, and Very Often. The scoring direction is reversed for approximately half of the items. A typical item in the Independence scale is "Students choose their partners for group work." A scale description and sample item for each scale is provided in Rentoul & Fraser (1981).

The Student Actual and Student Preferred forms of the ICEQ have been administered to a sample of 150 junior high school classes in Tasmania and New South Wales. Data from these samples were analyzed by Fraser (1981c) to provide information about various statistical characteristics relevant to the validity of ICEQ scales. In particular, estimates of class reliabilities (Cronbach's alpha coefficient) for various scales were found to range from 0.77 to 0.91 for the Student Actual form and from 0.75 to 0.92 for the Student Preferred form. Other data attest to

each ICEQ scale's discriminant validity, test-retest reliability, and ability to differentiate between the perceptions of students in different classrooms. Also the ICEQ has been used in a number of recently completed studies which have established relationships between student outcomes and the nature of the classroom environment (Fraser, 1981c, d), revealed some fascinating differences between students and their teachers in their perceptions of actual and preferred classroom environment (Fraser, in press), suggested that students achieve better when in their preferred environment (Fraser & Rentoul, 1980), and traced changes in beginning teachers' attitudes to classroom individualization during the first year of teaching (Rentoul & Fraser, 1981).

Attempting to Improve Classroom Environment

The present small-scale study involved a teacher working in a private secondary school in suburban Sydney in using the Student Actual and Student Preferred forms of the ICEQ in a systematic attempt to improve the environment of one of his classes. This class consisted of 31 seventh grade boys of mixed ability who were studying English, mathematics, and history with this teacher. The procedure followed incorporated the following five fundamental steps:

1. **Assessment** The teacher administered the ICEQ to all students in the class. The actual form was answered first, while the preferred form was administered in the same time slot one week later.
2. **Feedback** The teacher was provided with feedback information derived from student responses to the ICEQ. Student data were analyzed by computer by university staff, and presented to the teacher in the form of profiles representing the class means of students' actual and preferred environment scores (see Figure 1). During a visit to the school, university staff explained the interpretation of results to the teacher who found the profiles a particularly useful and easily comprehensible way of summarizing the data. In particular, the profiles permitted ready identification of changes in classroom environment needed in order to reduce discrepancies between the nature of the actual environment and the preferred environment as currently perceived by students.

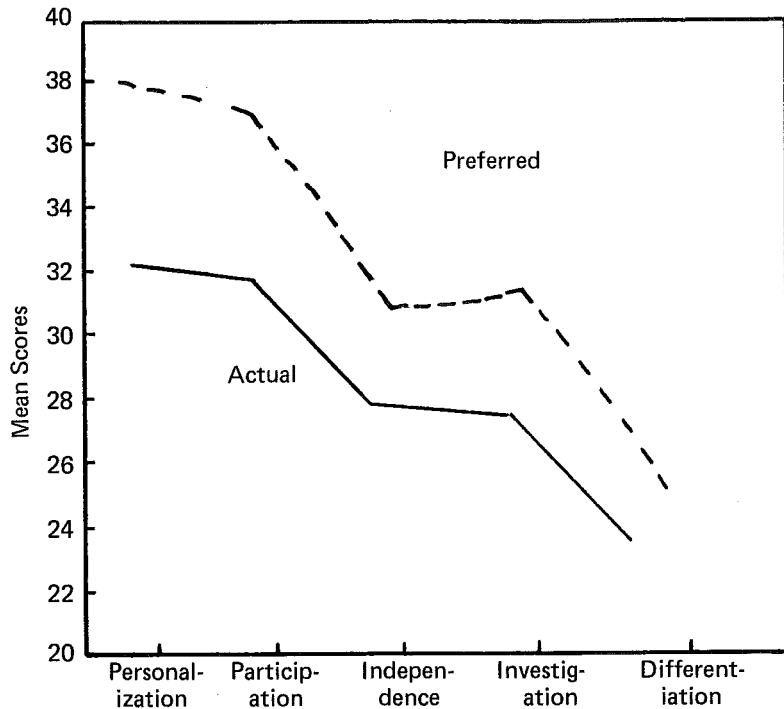


FIGURE 1: Pretest profiles of mean actual and preferred scores.

- Reflection and discussion** The teacher engaged in private reflection and informal discussion with university staff about the profiles. This further clarified the interpretation and implications of the profiles and provided the basis for a decision about whether an attempt would be made to change the environment in terms of some of the ICEQ's dimensions. The main criteria used for selection of a dimension for inclusion in an attempt to change classroom environment were, first, that there should exist a sizable actual-preferred discrepancy on that variable and, second, that the teacher should feel concerned about the discrepancy which existed on that dimension and should want to make an effort to reduce the discrepancy. Also it was considered impractical for the teacher to attempt simultaneously to change more than two

or three different environment variables. These considerations led the teacher to decide to introduce an intervention aimed at increasing the levels of Personalization and Participation in his class.

- Intervention** The teacher introduced an intervention of approximately one month's duration in an attempt to increase classroom Personalization and Participation. This intervention consisted of a variety of strategies, some of which originated during a number of meetings between the teacher and university personnel, and others of which were suggested by examining ideas contained in individual ICEQ items. Strategies implemented to enhance classroom Personalization involved the teacher in moving around the class more to mix with students, chatting with and being warm toward students, and avoiding snappiness. This required some restructuring of lessons so that the teacher had more time for moving around the class. Strategies used by the teacher in attempting to increase Participation were reducing teacher talk, providing more time for students to ask and answer questions, and organizing more group work. In brief, the overall rationale for these strategies was to place greater emphasis on the human element in teaching.
- Reassessment** The Student Actual form of the ICEQ was administered at the end of the month of intervention to see whether students were perceiving their classroom environment differently from before. This was accompanied by lengthy discussion about the meaningfulness of results and about the potential applicability of the procedures followed for use by other teachers.

The main practical problems experienced during the project were the length of time needed for students to complete the questionnaires, and the time delays involved between questionnaire administration and the feedback of information from computer analyses to the teacher. Because of these problems, a new, shorter 25-item version of the ICEQ has been developed to permit a more rapid assessment of actual and preferred environment. Although the reliability of the short form is somewhat lower than that of the long form, the short form's reliability is still more than adequate for the present purpose of generating class mean profiles. Another major merit of the new short form is that it is suitable for rapid hand scoring; consequently, delays between questionnaire administration and feedback of results can be reduced markedly.

Results

The results of the study are summarized graphically in Figure 2 and in tabular form in Table 1. Figure 2 compares profiles of student actual-prepared discrepancy scores obtained before and after the intervention. These discrepancy scores were obtained simply by subtracting the class mean score for students' perceptions of actual environment from the mean score for preferred environment on each of the ICEQ's five scales. The unbroken line in Figure 2 is the pretest discrepancy profile which corresponds to the separate pretest actual and preferred profiles in Figure 1. The distances between points on the discrepancy profiles and the horizontal line in Figure 2 represent the necessary increase in each area needed for the class to become as students would prefer it.

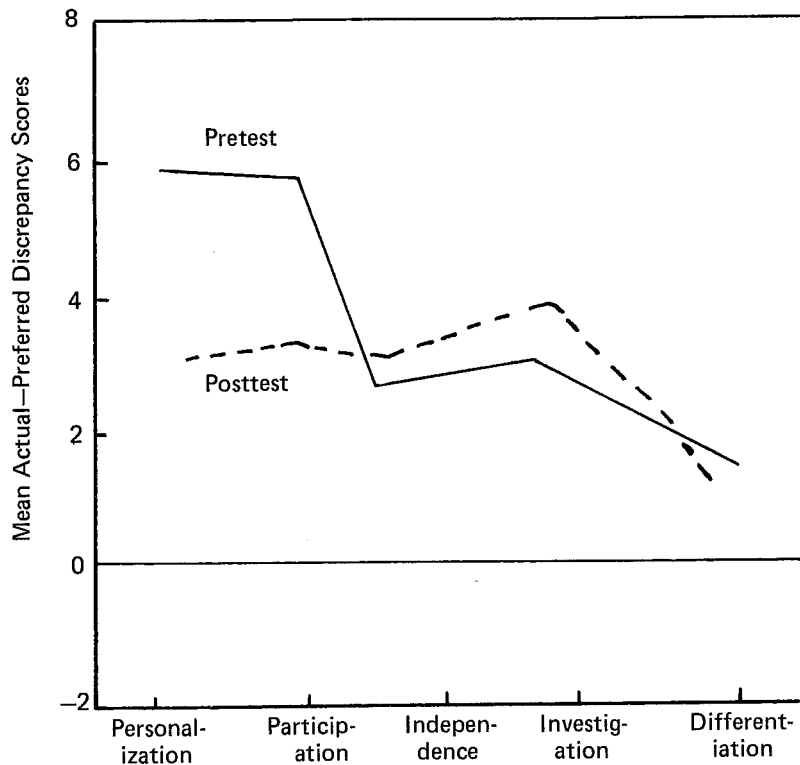


FIGURE 2: Pretest and posttest profiles of mean actual-preferred discrepancy scores.

Figure 2 clearly illustrates that, during the time of the intervention, an appreciable reduction in actual-preferred discrepancy occurred for the dimensions of Personalization and Participation, but that a negligible change occurred for the Independence, Investigation, and Differentiation scales. These findings are especially noteworthy because the two dimensions on which the appreciable changes were recorded were those on which the teacher had attempted to promote change. Also the absence of a sizeable change on the three dimensions for which no change was attempted adds some support for the efficacy of the intervention strategy.

Table 1 further illustrates these findings. The first three columns show for each ICEQ scale the mean discrepancy score (i.e., mean preferred score minus mean actual score) prior to the intervention, the mean discrepancy score after the intervention, and the pretest-posttest change in discrepancy scores. The last column shows the results of a t test for dependent samples for the significance of pretest-posttest changes in discrepancy scores on each scale. (Since only a single assessment of preferred environment was made, these t tests for pretest-posttest changes in discrepancy scores are equivalent to t tests for pretest-posttest changes in actual scores.) This table shows that large and statistically significant reductions occurred in actual-preferred discrepancy on the Personalization and Participation scales during the time of the intervention. On the other hand, quite small and statistically nonsignificant changes were found for the other three ICEQ scales.

TABLE 1
Changes in Actual-Preferred Discrepancy Scores During
Time of Intervention

Scale	Mean Discrepancy Score			t
	Pretest	Posttest	Change	
Personalization	5.8	3.1	-2.7	-2.9*
Participation	5.7	3.3	-2.4	-3.0*
Independence	2.6	3.1	0.5	0.6
Investigation	3.1	3.8	0.7	0.8
Differentiation	1.8	1.5	-0.3	-0.5

* $p < .01$

Generally the teacher found that information obtained from administration of the ICEQ was meaningful and that it was possible to identify phenomena in the class which were contributing to the profiles. In particular, the changes in environment picked up through use of the questionnaires accorded with the teacher's intuitive expectations based on student comments and classroom events. These observations are important because they suggest that, in this instance, the ICEQ was able to provide the teacher with feedback information about his class which appeared plausible, which made him aware of specific problem areas, and which suggested starting points for implementing improvements.

Discussion

This article describes an initial attempt at facilitating improvements in classroom environment based on information about student perceptions of their actual and preferred environment. The promising findings from the study were that appreciable changes in environment were obtained for those dimensions, and only those dimensions, on which improvement was attempted by the teacher. Although the tentativeness of findings must be acknowledged, the present work suggests that the use of classroom environment instruments can provide teachers with meaningful information about problem areas and a tangible basis to guide improvements in these areas. Moreover, experience with numerous teachers who have tried out these methods for environmental improvement suggests that they provide a useful vehicle for teacher development. It is hoped that the approaches and instruments described here will stimulate interest among other educators in the worthwhile enterprise of facilitating improvement in classroom environment.

Notes

A copy of the ICEQ together with scoring instructions can be requested from Barry J. Fraser, Faculty of Education, Western Australian Institute of Technology, South Bentley, W. A. 6102.

References

- ANDERSON, G. J., & WALBERG, H. J. Learning environments. In H. J. Walberg (Ed.), *Evaluating Educational Performance: A Sourcebook of Methods, Instruments, and Examples*. Berkeley: McCutchan, 1974.
- BLISS, F., MOOS, R., & BROMET, E. Monitoring change in community-oriented treatment programs. *Journal of Community Psychology*, 1976, 4, 315-326.

- BODINE, R. Teacher's self-assessment. In E. R. House (Ed.), *School Evaluation: The Politics and the Process*. Berkeley: McCutchan, 1973.
- BROWN, G. A. *Microteaching: A Programme of Teaching Skills*. London: Methuen, 1975.
- DAVIS, E. *Teaching as Curriculum Evaluators*. Sydney: George Allen & Unwin, 1980.
- DEYOUNG, A. J. Classroom climate and class success: A case study at the university level. *Journal of Educational Research*, 1977, 70, 252-257.
- DUNKIN, M. J., & BIDDLE, B. *The Study of Teaching*. New York: Holt, Rinehart & Winston, 1974.
- ELLIOTT, J. Developing hypotheses about classrooms from teachers' practical constructs: An account of the work of the Ford Teaching Project. *Interchange*, 1976-77, 7(1), 2-22.
- FRASER, B. J. Guest editor's introduction: Classroom environment research in the 1970's and 1980's. *Studies in Educational Evaluation*, 1980a, 6, 221-223.
- FRASER, B. J. Using environmental assessments to make better classrooms. *Journal of Curriculum Studies*, 1981a, 13, 131-144.
- FRASER, B. J. *Learning Environment in Curriculum Evaluation: A Review*. Evaluation in Education Series, Oxford: Pergamon, 1981b.
- FRASER, B. J. Validity and use of Individualized Classroom Environment Questionnaire. Paper presented at Annual Meeting of American Educational Research Association, Los Angeles, April, 1981c.
- FRASER, B. J. Predictive validity of an individualized classroom environment questionnaire. *Alberta Journal of Educational Research*, 1981d, 27, 240-251.
- FRASER, B. J. Differences between student and teacher perceptions of actual and preferred classroom learning environment. *Educational Evaluation and Policy Analysis*. (in press)
- FRASER, B. J., & RENTOUL, A. J. Person-environment fit in open classrooms. *Journal of Educational Research*, 1980, 73, 159-167.
- FRASER, B. J., & WALBERG, H. J. Psychosocial learning environment in science classrooms: A review of research. *Studies in Science Education*, 1981, 8, 67-92.
- HAERTEL, G. D., WALBERG, H. J., & HAERTEL, E. H. Socio-psychological environments and learning: A quantitative synthesis. *British Educational Research Journal*, 1981, 7, 27-36.
- HARLEN, W. (Ed.). *Evaluation and the Teacher's Role*. Schools Council Research Studies Series, London: Macmillan, 1978.
- MOOS, R. H. *Evaluating Educational Environments: Procedures, Measures, Findings and Policy Implications*. San Francisco: Jossey-Bass, 1979.

- MOOS, R. H., & OTTO, J. The Community-Oriented Programs Environment Scale: A method for the facilitation and evaluation of social change. *Community Mental Health Journal*, 1972, 8, 28-37.
- OLIVERO, J. L. *Microteaching: Medium for Improving Instruction*, Ohio: Merrill, 1970.
- PETERSON, P. L., & WALBERG, H. J. (Eds.). *Research on Teaching: Concepts, Findings, and Implications*. Berkeley: McCutchan, 1979.
- PIERCE, W. D., TRICKETT, E. J., & MOOS, R. H. Changing ward atmosphere through discussion of the perceived ward environment. *Archives of General Psychiatry*, 1972, 26, 35-41.
- RETOUL, A. J., & FRASER, B. J. Conceptualization of enquiry-based or open classroom learning environments. *Journal of Curriculum Studies*, 1979, 11, 233-245.
- RETOUL, A. J., & FRASER, B. J. Changes in beginning teachers' attitudes towards individualised teaching approaches in the first year of teaching. *Australian Journal of Teacher Education*, 1981, 6, 1-13.
- SCHWAB, J. J. The practical: A language for curriculum. *School Review*, 1969, 78, 1-23.
- STENHOUSE, L. *An Introduction to Curriculum Research and Development*. London: Heinemann, 1975.
- TRICKETT, E. J., & MOOS, R. H. Social environment of junior high and high school classrooms. *Journal of Educational Psychology*, 1973, 65, 93-102.
- WALBERG, H. J. (Ed.). *Educational Environments and Effects: Evaluation, Policy, and Productivity*. Berkeley: McCutchan, 1979.
- WALBERG, H. J., & HAERTEL, G. D. Validity and use of educational environment assessments. *Studies in Educational Evaluation*, 1980, 6, 225-238.

CLASSROOM MANAGEMENT: MANAGERIAL FUNCTIONS IN TEACHING*

Dr Richard Coatney
Western Australian Institute of Technology

Classroom management has long been a concern of educators. Traditionally, the term has referred to the use of discipline by the teacher to minimize student disruptions in the classroom. Recently, conceptions of classroom management have emerged that are broader than the traditional one. For example, Berliner speaks of the teacher as an executive (1982).

. . . Today's teacher is best conceived of as an executive. The modern teacher does not just dispense information, he or she really manages access to information. The modern teacher doesn't just give love, he or she provides environments that provide students security and rewards so they can grow intellectually and emotionally. The teacher is a manager, an executive manager of the cognitive and affective dimensions of the classroom (pp. 1-2).

Also, the conceptions of classroom management put forth in the second volume of the seventy-eighth yearbook of the National Society for the Study of Education, edited by Duke (1979), are equally broad. Duke himself defines classroom management as constituting "the provisions and procedures necessary to establish and maintain an environment in which instruction and learning can occur. Classroom management thus is considered to encompass more than the supervision of student behavior but less than everything that takes place in class" (p.xii). Duke's definition, then, is a broad one but does distinguish management from actual instruction.

Finally, Wallen and Wallen (1978), in their definition, conceptualize

*This paper was written as a result of professional leave taken at the University of Arizona with Dr David Berliner, whom I want to thank for generously giving his time in a busy schedule to provide thought-provoking discussions on a wide range of educational topics, including the one addressed in this paper, and for reviewing this paper. I also want to thank Dr Tony Ryan of the Western Australian Institute of Technology for his support both before and after this professional leave was taken.