Assessing Changes in Elementary and Junior High School
Environments Using Observers' Reports

Harriet Feldlaufer

Achievement Research Laboratory

The University of Michigan

The transition into junior high school is marked by a decline in students' achievement-related values and beliefs. Students become more pessimistic about their academic abilities, more anxious in academic settings and less positive in their attitudes toward school (Eccles et al., in press). Why do students "turn off" to school at this age? Several authors have suggested that school environments may change across grade levels and that these changes precipitate the decline in students' achievement-related attitudes. Unfortunately, there has been very little research done with which to evaluate the hypothesis that school environments change in a systematic fashion across grade levels together with the hypothesis that these changes are related to the decline in students' attitudes.

Do classroom environments change systematically with grade level? Brophy and Evertson (1978) have conducted several large scale investigations of classrooms. Based on these studies, Brophy and Evertson concluded that there are major differences in classroom environments across grade levels. They identified four general stages: grades one through three, grades four through six, grades seven through nine, and grades ten through twelve. They report that early elementary classrooms are generally more "open" and less teacher-controlled than later elementary and junior high school environments. Other studies provide some additional support for the belief that there is an increased emphasis in teacher control over students as they move through the grades (Hoy, 1969; Moos, 1979; Nielsen & Gerber, 1979; Walberg, House, & Steele, 1973).

What does research tell us about the relationship between school environments and achievement motivation? Research in the domain of student satisfaction clearly indicates that students express greater satisfaction and exhibit greater intrinsic motivation in situations that provide them with greater control over their behaviors (Arlin & Whitely, 1978; Stipek & Weisz, 1981; Thomas, 1980). Research within the achievement domain also suggests that environmental settings that focus individuals' attention on self-assessment rather than on the task at hand have debilitating effects on both motivation and achievement for all but the most competent and confident individuals (Brophy, 1983; Doyle, 1979; Hill, 1977). In general, environmental settings which emphasize evaluation, social comparison, and competition appear to increase self-focus or an ego-involved orientation (see Nicholls, 1980). Each of these bodies of research suggests that most students will prefer and will have the most positive attitudes in an environment in which the students themselves have some choice over their academic activities and in which self-focus is less salient.

Very little work has been done too assess classroom environments in terms of processes which are directly related to social comparison of abilities and the evaluation system. We do

know that grading practices often change during the late elementary years or at the beginning of junior high school (Gronlund, 1974). In contrast to the early elementary school, grades usually reflect more an assessment of ability and less an assessment of effort. Students are graded by a variety of teachers, usually receive letter grades, and may be graded on a curve. Consequently, the salience of social comparison information is increased. While individualized assignments are fairly common during the elementary school years, instruction as children approach junior high school is more often characterized by a whole-class format. As a result of this teaching style, students tend to be graded in terms of their relative performance on class tests and class assignments rather than on their individual progress (Rosenholtz & Rosenholtz, 1981). Even though the social psychology, organizational psychology, and educational psychology liteature point to the power of social comparison information, assessments of classroom environments have not focused on variables which relate to this dynamic.

This paper describes the steps we took to design and test a classroom environment measure to investigate whether there are grade-related changes between elementary and junior high school mathematics classrooms. We are especially interested in changes in classroom environments that might have an effect on students' achievement-related beliefs, values, and behaviors, particularly in mathematics, but also more generally in other academic subjects, such as English or science, and in non-academic domains such as social relations. Needless to say, in a study which looks at the effects of environmental change, a sensitive and accurate measure of the environment is essential.

Our goal was to develop a classroom environment measure which would assess two broad features of the classroom environment. One of the features is the nature of decision-making in the classroom, with special attention being paid to opportunities for student self-management and choice, and the extent to which teachers trust and respect their students, and set high expectations for their students. The second emphasis of our measure is the assessment of self- versus task focus. Students might tend to focus more on evaluating their competence in academic domains, and less on creative problem-solving, to the extent there exists in the classroom an emphasis on grades and other extrinsic rewards and punishments, and to the extent that instruction is public and involves the whole class.

The development of our classroom environment measure began almost two years ago. We looked at many prominent classroom environment measures including Moos & Trickett's "Classroom Environment Scale", (1974); Epstein & McPartland's "Quality of School Life Scale", (1976); Fraser's "Individualized Classroom Environment Measure",(1982); Anderson's "Learning Environment Inventory", (1976); Traub & Weiss's "Dimensions of Schooling Questionnaire", (1972); Brookover's measures from the "School Social Climate Study", (1979); Patrick Lee's "Classroom Decision-

Making Scale", (1979), and many others. These measures had items
that tap classroom authority systems, such as who makes decisions
regarding classroom behavior, classwork and homework. We adapted
a number of items measuring teacher warmth and teacher fairness.
In addition, these measures had items regarding task organization
such as whole class, within-classroom ability grouping and
individualized instruction. We generated a pool of items suited
to the more specific objectives of our research of the transition
students make from their last year of elementary school through
the first year of middle or junior high school. This pool
includes measures of students' social comparison of abilities,
competition among students, the use of public evaluation and
discipline practices, and teacher behaviors that communicate
values about subject matter. We have included both high and low
inference items in our item pool. High inference items allow us
to capture the spirit and context of statements, gestures and
behaviors of teachers and students using some judgement and
interpretation. An example of a high inference item in our pool
is, "The teacher seems to expect most students to do shoddy work
or make stupid mistakes". On the other hand, low inference items
allow us to report specific publicly observable speech, behavior
and physical characteristics of the classroom with minimal
interpretation on the part of the rater. An example of a low
inference item in our pool is, "When math papers are handed back
students compare grades". The combination of high and low
inference items allows us to detect both formal and informal
behaviors and practices that take place in the classroom.
Epstein and McPartland's (1979) work on open and traditional
classroom settings makes the distinction between the formal
aspects and the informal aspects of classroom authority
structures. They found it was the informal aspects of authority
systems that were the strongest predictors of student outcomes.
We believe that these informal aspects of classroom authority
systems are often only measured by high inference items. We have
tried to develop items to tap these more subtle, informal
behaviors, like teacher warmth and supportiveness, teacher's use
of sarcasm, and the teacher as a careful listener.

We pre-piloted our instrument in upper-elementary and junior
high schoolmath classrooms. We worked in pairs. After we had
observed in a classroom for several days, we independently rated
items for the classroom and then talked at length about the
classroom. How did the classroom differ from others we had
observed? What were the salient characteristics of the
classroom? Did we have items in the measure which tapped these
features? We found that some items worked well, and others
others didn't. For instance, we had thought to measure teachers'
respect for student' ideas and opinions through the item,
"Assertiveness is valued in this class", but we found that
observers did not agree on what constitutes assertiveness, or
what constitutes valuing. This item was dropped. Other items
were reworded.

The classroom environment measure we have developed has

three forms. One form asks <u>students</u> to describe what their classroom is like. The second form asks <u>teachers</u> to describe the same classroom from the teachers perspective. The third form required our <u>observers</u> to make ratings on the classroom environment. As much as possible, we tried to develop items whose wording would correspond as closely as possible from one form to the next.

This paper will report some of our preliminary findings using the Observer Classroom Environment Measure. The findings described come from a pilot sample of 14 classrooms in two public school districts in southeastern Michigan. Two classrooms were combined 4th and 5th grades, two were 5th grade classrooms, nine were 7th grade classrooms, and one was an 8th grade classroom. The four upper-elementary classrooms were drawn from one elementary building. The ten junior high school classrooms were drawn from three buildings in two school districts.

Two observers spent approximately 45 minutes per day in each classroom for five consecutive days during math instruction. The intention of observing for five days was to capture possible variations in the scheduling of tests, the sequence with which assignments were given each day, discussed the next day and evaluated, and the extent to which teachers were consistent in their behavior. At the end of the five day observation period the two observers in each classroom independently rated all items on the measure. Next, each pair of observers reached a consensus on every item. 50 items were scored True-False, and 21 items were scored on a three-point frequency scale . The percent agreement for pairs of observers averaged .84 on the dichotomous items. One would of expected a 50% agreement by chance alone. The percent agreement for pairs of observers averaged .76 on the 21 trichotomous items. One would have expected a 33% agreement by chance alone on the trichotomous items. For both the True-False and the frequency items, the independent ratings of pairs of observers agreed at levels that were substantially above chance.

Based on chi-square analyses from our pilot sample, several significant grade-related changes in observers' perceptions of the classroom environment were found. The attached table lists items that showed significant grade-related differences between elementary and junior high school classrooms. With respect to the nature of the authority system, upper-elementary students were given more decision-making opportunities than the junior high school students. The elementary students were more often allowed to decide the order in which to complete their math work, had more opportunity to discuss a math topic without frequent teacher interruptions, and were able to check their own tests and quizzes than were the junior high school students. Our findings also suggest that elementary school teachers were perceived to be warmer, more supportive, and more trusting than the junior high school teachers.

With regard to task focus, teachers at the elementary grade level were found to emphasize doing math work more for intrinsic reasons, rather than extrinsic rewards, more than the teachers at the junior high school level. Elementary classroom teachers were less likely to penalize students for turning in math work late or not completing assignments than were the junior high school teachers. Elementary students were more likely to work together in small groups or pairs on an assignment than were the junior high school students. All of this combined reflects a more cooperative working environment with less emphasis on rewards and punishment in the elementary classroom.

These analyses, done with classrooms as the unit of analysis, support the hypothesis that upper-elementary classrooms allow greater student self-management and choice, and provide greater teacher warmth, trust, and respect for students compared to junior high school classrooms. Observers found greater emphasis on grading, rewards and punishment, and whole-class instruction in junior high classrooms, factors which would lead to an increase in student self-focus.

A benefit of collecting ratings from observers in classrooms accrues to us when we follow students longitudinally. For instance, if students and teachers all agreed that decision-making opportunities in math classrooms were more common in their upper-elementary classrooms than in their junior high school classrooms, the role of an independent observer would be minimal. However, to the extent that students and teachers reports of their classroom environments are discrepant, the role of independent observers following these students over time, increases in importance. If all we knew was that students' perceptions of decision-making opportunities changed, it would be difficult to determine whether the "objective" environments had actually changed, or students had changed as perceivers, and the same opportunities which had existed in upper-elementary classrooms were no longer adequate to their developing needs for self-management. Having observers present in these students' classrooms across this school transition, gives us an independent control on environmental change.

References

Anderson, C. J., & Walberg, H. J. (1976). The Assessment of Learning Environments: A Manual for the Learning Environment Inventory and the My Class Inventory. Chicago, Illinois: University of Illinois.

Arlin, M., & Whitely, T. W.(1978). Perceptions of self-managed learning opportunities and academic locus of control: A causal interpretation. Journal of Educational Psychology, 70, 988-992.

Brookover, W., Beady, C., Flood, P., Schweitzer, J. & Wisenbaker, J. (1979). School Social Systems and Student Achievement: Schools Can Make a Difference. New York, New York: Praeger Publishers.

Brophy, J. (1983). Fostering student learning and motivation in the elementary school classroom. In S. G. Paris, G. M. Olson, & H. W. Stevenson (Eds.), Motivation in the classroom., 283-305. Hillsdale, N. J.: Erlbaum.

Brophy, J. E., & Evertson, C. M. (1978). Context variables in teaching. Educational Psychologist, 12, 310-316.

Doyle, W. (1979). Classroom tasks and students' abilities. In P. L. Peterson & H. J. Walberg (Eds.), Research on teaching: Concepts, findings, and implications. Berkeley, CA.: McCutchan Publishing Co., 183-209.

Eccles, J. S., Midgley, C., & Adler, T. F. (in press). Age related changes in the school environment: effects on achievement motivation. In J. G. Nicholls (Ed.) The development of achievement motivation. New York: JAI press.

Epstein, J. L., & McPartland, J. M. (1976). The concept and measurement of the quality of school life. American Educational Research Journal, 13, 15-30.

Epstein, J. L., & McPartland, J. M. (1979). Authority Structures. In H. J. Walberg (Ed.), Educational environments and effects, Berkeley, CA.: McCutchan Publishing Co.

Fraser, B. J. (1982). Individualized Classroom Environment Questionnaire Handbook. Unpublished manuscript. Western Australian Institute of Technology.

Gronlund, N. E. (1974). Improving marking and reporting in classroom instruction: A title in the current topics in classroom instruction series. New York: Macmillan Publishing Co., Inc.

Hill, K. T. (1977). The relation of evaluative practices to test anxiety and achievement motivation. Educator, 19, 15-22.

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Hoy, W. K. (1969). Pupil control ideology and organizational socialization:A further examination of the influence of experience on the beginning teacher. American Journal of Education, 77, 257-265.

Lee, P. (1979). A developmental study of children's prerogatives and constraints in several domains of school experience. Report to the National Institute of Education.

Moos, R. H. (1979). Educational climates. In H. J. Walberg (Ed.), Educational environments and effects. Berkeley, CA.: McCutchan Publishing Co.

Nicholls, J. G. (1980, June). Striving to develop and demonstrate ability: An intentional theory of achievement motivation. In W. U. Meyer & B. Weiner (Chair), Conference on Attributional Approaches to Human Motivation. Center for Interdisciplinary Studies, University of Cielefeld, West Germany.

Nielsen, A. & Gerber, D. (1979). Psychosocial aspects of truancy in early adolescence. Adolescence, 14, 313-326.

Rosenholtz, S. J., & Rosenholtz, S. H. (1981). Classroom organization and the perception of ability. Sociology of Education, 54, 132-140.

Stipek, D. J. & Weisz, J. R. (1981). Perceived personal control and academic achievement. Review of Educational Research, 51, 101-137.

Thomas, J. W. (1980). Agency and achievement: Self-management and self-reward. Review of Educational Research, 50, 213-240.

Traub, R. E., Weiss, J., Fisher, C. W. & Musella, D. (1972). Closure on Openness: Describing and Quantifying Open Education. Interchange, 3(213), 69-84.

Walberg, H. J., House, E. R., & Steele, J. M. (1973). Grade level, cognition, and affect: A cross-section of classroom perceptions. Journal of Educational Psychology, 64, 142-146.

[Grade Level Differences for Items in Observer Classroom Environment Measure (OCEM)]

Item	Direction	p[1]
Students can decide the order in which they complete math work[2]	ELEM > JHS	.06
There are opportunities for students to discuss a math topic without frequent teacher interruptions	ELEM > JHS	.04
Students check their math quizzes or tests	ELEM > JHS	.04
The teacher is warm and supportive	ELEM > JHS	.03
The teacher emphasizes doing math for its own sake (because it's interesting or valuable, etc.)	ELEM > JHS	.05
Students are penalized for turning math work in late	JHS > ELEM	.02
Students work together in small groups or pairs[2]	ELEM > JHS	.06

[1] P-value derived from Fisher's Exact Test

[2] These items are scored on a 3-point frequency scale (1=rarely or never; 2=sometimes; 3=often or always). All others items are scored True-False.