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Classroom environment encompasses a broad range of educational concepts, including the physical setting, the psychological environment created through social contexts, and numerous instructional components related to teacher characteristics and behaviors. The study classroom environment has been widespread across nearly all subspecializations of educational psychology. Researchers are interested in relationships between environment constructs and multiple outcomes, including learning, engagement, motivation, social relationships, and group dynamics. Early researchers recognized that behavior is a function of people's personal characteristics and their environment.

In the educational setting, Urie Bronfenbrenner's work on ecological contexts secured a place in educational research for studies of classroom environment. Bronfenbrenner's *Ecological Systems Theory* (Bronfenbrenner, 1977) encompasses the layered environmental system of microcosms in which human development takes place and emphasizes the importance of family, teachers, schools, and the larger sociocultural environment on the developmental process. Over the years this research has evolved from examining purely physical elements of the environment to more complex models of psychosocial relationships between students in the classrooms as well as between the teacher and students.

Research beginning in the mid-1990s has focused on one or more of these aspects and has associated classroom environment variables with numerous positive and negative student outcomes. In addition to the wide array of outcomes investigated in relationship to classroom environment, this area of study has also been of interest to methodologists as the data structure poses a unit of analysis dilemma; in terms of examining classroom variables in combination with student outcomes, researchers have had to determine if the data would be analyzed at the classroom level or at the student level. With the arrival in the 1990s of statistical methodologies capable of handling data collected from both levels, studies have been better able to include variables collected at both levels. Various methodologies, including survey, observations, and interviews have been used to capture aspects of the classroom environment from student, teacher, and observer perspectives. The Early Childhood group based at the University of Virginia has an extensive body of work that examines classroom environment as a validated observation system of multiple dimensions of the classroom.

The Physical Environment

More frequently a focus in earlier studies of classroom environment, the physical environment has continued to appear in contemporary studies as an influence on behavioral and academic outcomes. Current studies of the physical environment have investigated aspects such as class composition, class size, and classroom management.

Class composition studies examine classroom grouping methods, including ability grouping of
students, single-sex classrooms and cooperative learning groups. Research has found that classrooms with highly cooperative groups appear to have students with more positive perceptions of fairness in grading, stronger class cohesion, and higher degree of social support, as well as higher achievement scores. Female students have been found to prefer collaborating with other students when studying and resolving problems, and they have a stronger preference for teacher support than male students. The primary school environments tend to use collaborative strategies more frequently and have higher levels of teacher involvement and support than is found in secondary schools. Research on single-sex classrooms has been more divided in terms of academic outcome research. Some studies found that girls do better in math and science particularly when separated from male students; other studies found no achievement differences between genders when either in single-sex or mixed-sex classrooms.

Studies about class size have examined how class size influences student and teacher behaviors. In general, smaller classes are associated with students who are less stressed and are more frequently on-task with fewer reported behavior problems than students in larger classes. Although teachers tend to use similar instructional strategies whether teaching large or small classes, there is some evidence to suggest that more class time is spent on administrative tasks for larger classes, leaving less time available for instruction. Some research has suggested that differences in academic outcomes based on class size are due to differences in student behaviors.

Overcrowded facilities, too many students in certain classes, and lack of teachers' assistants are three major issues cited as potentially creating problems due to increased stress levels of students and increased teacher-reported incidences of behavioral problems. These increased stress levels and behavior problems found in larger classrooms are frequently accompanied by lower levels of academic achievement.

Teacher-to-child ratios are also of interest to many researchers because the number of reported behavioral problems seem to increase as class size increases. Many researchers have observed that large classes, with 30 or more students, tend to have a larger number of students off task more often with fewer students engaged with the teacher than children in small classes of 20 students or less. Yet there may be a social cost for students in small classes; other researchers found that smaller classes also had high incidences of children engaging in asocial and exclusionary behavior. Whether students are engaging in on-task or disruptive behavior can also be influenced by effective classroom management instructions and consistency of teacher enforcement.

The timing of classroom management and organization also impacts students' perceptions of the teacher as an

Classroom Climate

Part of the larger focus on school improvement is School Climate or Educational Climate, which defines how teachers interact with each other and with administrators. This is different from Classroom Climate, which identifies relationships among students with each other, the teacher and how this translates into learning.

There are a number of tools available to determine Classroom Climate and then to use the results as part of the comprehensive plan for school improvement. Even the most sophisticated measurement tools rely heavily on opinion and perception. Opinion is generated from information, statistics on student and teacher performance, while perception is based on observation of the behaviors in the classroom and the school.
In determining Classroom Climate, it is important to apply information gathered from both opinion and perception to form a comprehensive picture of student success and to therefore create a meaningful school improvement plan.

Opinion is generated by reviewing student test scores, grades earned, attendance, health and family. Perception is formed by observation and by paper and pencil tools that evaluate Classroom Climate based on organization of the classroom, the attitude toward student achievement, the attitudes toward school, the attitudes toward peers, the degree of democracy experienced in the classroom, the acceptance of diversity, the range of learning experiences, the autonomy of the teacher, the competitiveness among students, the consistency of interpretation of rule infractions and their consequences.

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effective manager. When students have been asked to describe effective classroom managers, researchers report that these are teachers who set clear expectations and consequences early in the year. They also describe teachers who consistently (and predictably) follow through with consequences, as opposed to merely threatening consequences. These characteristics appear essential in establishing good classroom environment in terms of social support and mutual respect. Additionally, the amount of time a teacher spends in teaching organizational behaviors impacts the classroom environment. Researchers have found that students in classrooms that spent more time early in the school year on organizational instruction substantially increased the amount of time students spent in student-managed activities later in the academic year. Intentionally providing organizational instruction at the start of the academic year is a characteristic of an effective classroom environment manager.

The Psychological Environment

Beyond the physical arrangement of a classroom a psychological environment is also created, based on the interaction of key players in the classroom, namely students and teachers. Research in this area has varied greatly and proliferated during the early twenty-first century. Studies have been particularly concentrated on student class participation rates, teacher support, and communication of learning goals.

Many teachers equate student engagement and on-task behavior with classroom participation, typically a top concern for teachers. Researchers support teachers’ intuition of a difference in the participation style of the different genders. Whereas girls are more likely to participate as part of the relational responsibility they feel toward the teacher, boys tend to respond more often if they feel the class is interesting and less often if the class is perceived as boring—indicating that for these students, teachers may be equally responsible for the participation level and learning. Most studies have found that boys speak out in class about three times as frequently as girls do; however, both genders typically perceive girls as better class participants. Although responses vary when students are asked what participation consists of, the most common response, and one frequently examined by researchers, is that participation is defined as answering questions when specifically asked. Both boys and girls seem to indicate a need for relational aspects to be present inorder for this type of participation to occur; however, whereas girls more frequently participate by responding to teachers’ questions, boys are more likely to participate as a means of obtaining attention or being noticed by the teacher. Teachers who want to encourage development of relational aspects for both genders may need to utilize different acknowledgement techniques for male students to enhance their perceptions of feeling supported as a class participant.
The notion of feeling supported as students has also been extensively examined in the classroom environment literature. Helen Patrick and colleagues (Patrick, Ryan, & Kaplan, 2007) found that there is a strong, positive relationship between students' level of motivation and engagement and their perceptions of the classroom environment as being socially supportive. The perception of a climate of mutual respect is required in order for students to increase their use of effective study strategies and increase feelings of confidence about their ability to successfully complete assignments. Furthermore, when students perceive that they receive emotional support and encouragement from their teachers and academic support from their peers they are more likely to be on-task in the classroom and use self-regulated strategies.

Another large body of educational research has focused on the communication of learning goals to students in combination with the individual goals and expectations of students. Some students and classrooms are more focused on obtaining grades than on mastery of objectives; these students and classrooms are said to be performance oriented rather than mastery oriented. A multitude of studies have examined this social-cognitive aspect of classrooms and found that the classroom-level learning goal can be linked to both behavioral and academic outcomes. Students in classrooms where performance is emphasized are more likely to engage in cheating, avoid help-seeking, and exhibit lower levels of academic engagement. In contrast, students who are in a classroom where the focus is on learning and improvement demonstrate higher levels of self-efficacy and engagement as well as more positive affect. At the personal goal level researchers have found that whereas students who are more focused on grades tend to have higher grades, those students who are more focused on mastering objectives tend to engage in more academically challenging tasks and retain information learned for a longer period of time.

The Role of the Teacher in the Classroom Environment

The third focus of many examinations of classroom environment has been on teacher behaviors, specifically teacher development and school culture and how these components affect classroom environment. Some research suggests that due to the complexity of cultivating an effective classroom environment, it may be beyond the developmental scope of the newly graduated teacher. Some researchers recommend that professional development for new teachers should include intense mentoring and teaching partnerships that reduce isolation and form productive and meaningful relationships with other adults in the school community.

Following the research studies on physical and psychological environment many suggestions for teachers have been presented in the literature, including classroom management plans and recommendations for building better relationships with students. Classroom rules and procedures should be introduced early in the school year and consequences should be enforced consistently across students and throughout the school year. Research has shown that routine and fairness have a positive impact on behavior as well as academic quality. It has been found that teachers who run respectful classrooms are in turn more respected by their students, and students believe that these teachers also hold higher learning expectations. Teachers are encouraged to focus more on the learning task than on the outcome or grade assigned at the end of the task, although this becomes much more difficult if the emphasis in education is placed on accountability and high-stakes testing.

Although most classroom environment studies are by definition limited to classrooms, a few studies have investigated the impact of the school culture on classroom environment. Findings suggest that schools with an authoritative culture (e.g., clear direction, delegation of responsibilities, accountability to and from all) tend to be judged by students and teachers as being successful. Schools that lack leadership or have a culture of multiple micro-conflicts tend to be perceived by students and teachers
as undermining educational gains.

Measuring Classroom Environment

In studies of classroom environment a plethora of measurement tools have been employed, including direct, objective observational measures as well as more subjective perceptions of the classroom environment. The types of items that have been used range from low inference (e.g., frequency counts of behavior) to high inference (e.g., classroom members’ perceptions about meaning of behaviors). There has been a heavy reliance on perceptual measures in much of the literature, supported by the argument that observational measures tend to be low-inference based and are of a limited time period, whereas perception measures better capture high-inference constructs, and therefore better represent day to day experience in the environment. Moreover, advances in statistical analyses have allowed for better incorporation of multiple student observations in one classroom to be aggregated as a measure of classroom environment. In contrast, an objective observation tool is limited to a single opinion or an agreement statistics between two or three independent observers.

Some of the most extensive work on measuring classroom environment was completed in the 1970s by Rudolf Moos, resulting in the widely used Classroom Environment Scale (Moos, 1979). Moos’s work, which has permeated the literature on classroom environment, is based on three essential areas of classroom environment: (1) Relationship dimension, which focuses on the interpersonal relationships between students and students and the teacher in a classroom; (2) Personal Development dimension, which centers on individual characteristics of the classroom member; and (3) System Maintenance and Change dimension which includes attributes such as classroom control and order as well as responsiveness to change. As delineated above, much of the research on classroom environment has also been attuned to these three dimensions or combinations thereof.

The mid-1990s was marked by a shift to more high-inference measures such as the What Is Happening In this Class (WIHIC) Questionnaire developed by Barry Fraser and colleagues (Fraser, 2002). This scale focuses entirely on student perceptions of a wide range of dimensions of the classroom, including student cohesiveness, teacher support, involvement, investigation, task orientation, cooperation, and equity. Each of the dimensions in the WIHIC can be mapped to three major dimensions of Moos's schema.

While these two measures continue to appear in the research literature, there are many other ways to measure classroom environment. As theories of learning continue to evolve the need to create and validate more measures of classroom environment continues to grow. Just as it is difficult to provide a concise definition of what classroom environment is, it is also difficult to define a measure of the construct, resulting in a multitude of varieties and variations in the literature.

Implications and Considerations

Classroom environment is a broad term and the research in this area is far reaching and defined in many different ways according to theory as well as practice. Regardless of the definition, there are many important findings from the research as a whole that can impact students' learning and behavior. This is also an area of continued growth in research as changes in technology and social culture alter the dynamics of what is considered classroom environment.

One of these areas to consider is the environment beyond the classroom. There has been debate on the impact of school-wide environment on classroom environment. With an increased importance placed on school-wide performance in order to demonstrate school success in terms of annual academic progress of students, there is undoubtedly pressure on teachers to produce high scores on
standardized state exams. This school-wide demand filters to the classroom and is communicated in various ways to students, directly impacting their experiences in the classroom. There is ongoing research to examine the implications of the high-stakes testing for the psychosocial dimension of the classroom as well as how this approach has influenced instructional strategies used by teachers in classrooms.

Furthermore, the definition of classroom environment continues to evolve with the development of online courses and increased use of technology in learning situations. Classrooms are now networked, expanding the environment beyond physical walls, enabling students to interact via email, video conferencing, and blogs. The addition of technology to the classroom has changed the environment, and research is only beginning to consider these new aspects and their impacts on classroom outcomes.

Information gained from ongoing studies of classroom environment continues to impact teachers' knowledge. Learning about factors that may shape students' perceptions of their learning environment, how teachers' actions appear to students, and how changes made to the learning environment may stimulate and encourage learning continue to be of the utmost importance to classroom teachers.

See also: School Belonging

BIBLIOGRAPHY


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