Improving School Learning:
The Student Perspective

by James L. Gentilucci

Most readers, especially those conversant with the contemporary American K–12 educational system, should not be surprised that poor student learning appears to be a distinct and pernicious problem in the United States. The continuing debate among educational policy makers and practitioners about how best to improve learning has yielded a multitude of federal, state, and local reform efforts. Yet, as promising as some of these efforts are, there is still a growing sense among many educational stakeholders that they have only marginally enhanced learning in America's classrooms (Steinberg, Brown, and Dornbusch 1996).

WHAT YOU SEE DEPENDS ON WHERE YOU STAND

It is instructive to note that many reform efforts were developed using an "objectivist" or "outsider" research paradigm. Implicit in this paradigm is the notion that students are objects whose learning can be clinically observed, described, or measured. Based on these observations, descriptions, or measurements, researchers draw inferences about possible motives underlying students' behavior and impute behavioral meanings in terms of these inferences. Although it has produced a substantive body of quantifiable data regarding academic performance (e.g., standardized test scores), the objec-

tivist research paradigm has not produced yet a satisfactory theoretical explanation for the learning problem because it fails to consider what students think and feel about learning.

Students are powerful determiners of the learning that occurs in their classrooms. Understanding why they learn well or poorly is predicated upon clearly understanding their perspectives on learning. After decades of objectivist research, however, we still know little about how these perspectives influence students' academic performance. The noted sociologist Howard Becker and his colleagues first put their finger on this theoretical problem over 35 years ago. Becker, Geer, and Hughes (1968) suggested that those who follow the objectivist research paradigm fail to adequately investigate the subjective meanings, or the thoughts and feelings embedded in students' actions. Therefore, they cannot tell us *what* students think and feel about learning and *why* they relate to it the

James L. Gentilucci *is Assistant Professor of Educational Leadership and Administration at California Polytechnic State University–San Luis Obispo. His research interests include educational leadership, school reform and improvement, and student learning.*

way they do. This is a crucial flaw as noted by the influential English sociologists Hammersley and Woods (1984, 3):

> *There can be little doubt that pupils' own interpretations of school processes represent a crucial link in the educational chain. Unless we understand how pupils respond to different forms of pedagogy and school organization and why they respond in the ways that they do, our efforts to increase the effectiveness, or to change the impact, of schooling will stand little chance of success.*

To avoid this flaw, then, it seems reasonable to argue that researchers, teachers, and school reformers should use subjectivist or insider research to provide theoretical and empirical bases for more effective learning interventions. Such research would allow students to speak for and about themselves, thereby revealing firsthand the subjective meanings they attach to learning-related behavior.

Interestingly, a number of studies have been directed toward increased use of subjectivist research over the last 40 years. These approaches received considerable international attention from American and British scholars during the 1960s, 1970s, and early 1980s, especially those influenced by the theories of symbolic interactions and phenomenology, and their emphasis on identifying meanings embedded in actions.

During the mid-1980s, a small group of researchers at the University of California–Santa Barbara used subjectivist research approaches (e.g., ethnographic observation and interviewing) to investigate student perspectives on a number of learning-related variables including responsibility for learning, commitment to learning goals, and the effect of classroom goal structures on the motivation to learn.

The findings of these student-perspective studies suggested that a small number of frequently occurring, within-classroom variables might be interfering with students' efforts to learn well. What was missing from this line of research, however, was an investigation of elementary students' perspectives that would explicate these variables and describe how they impeded efforts to learn well.

INVESTIGATING ELEMENTARY STUDENTS' PERSPECTIVES ON LEARNING

Consequently, a study of elementary students' perspectives on learning was conducted to fill this research gap. The study focused on three questions:

1. Is learning important for elementary students?

2. If so, what collective thoughts and feelings do they develop about their learning?

3. What collective reactions do they develop in response to these learning-related thoughts and feelings?

Again, the driving premise of the study was that students themselves, rather than scholars, administrators, teachers, or parents could tell us best what was wrong with their learning experience and how best to fix it.

METHODOLOGY

The study was based on a secondary analysis of data collected during the 1978–1979 school year. These data were selected for analysis because the researcher who collected them had successfully "entered the child's world" (Corsaro 1985) by becoming a sixth-grade student for an entire school year. The researcher gathered the data using an ethnographic observant participant methodology that was comprised of both participating observation and respondent-driven interviewing (Spradley 1979 and 1980).

During this time, the researcher conducted participating observations of students in two different classrooms and used his findings to guide a series of 54 unstructured ethnographic interviews. These efforts produced over 2,500 pages of transcripts filled with students' descriptions of school- and learning-related problems, as well as the thoughts, feelings, and reactions engendered by those problems.

An ethnographic data-analysis software program was used to scrutinize each transcript to identify regularities that occurred in terms of single words or phrases. Using these key words and phrases, a series of codes was developed to fracture or decontextualize the data. Subsequent document and index searches were used to recontextualize these fractured data and identify common or collectively held (68 percent or more of respondents) student perspectives.

The final phase of the study involved assessing the reliability of the findings derived from the data analysis. Because the data were collected from students in two different classrooms, it was necessary to determine whether the findings were consistent between classrooms and, therefore, truly representative of the entire group's collectively held perspectives. The age of the data was also a concern, so it was necessary to ascertain whether or not the learning-related perspectives reported in 1978–1979 had remained stable across time.

To test the consistency of the findings between classrooms, data were disaggregated by classroom, and a count of the number of students in each classroom who reported one or more collectively held perspectives was converted into a proportion. The differences in between-classroom proportions were tested under the null hypothesis H_0: $P1 = P2$ using a two-sample z test at the .05 level of significance.

To test the stability of the findings across time, it was necessary to collect new data with which the original data could be triangulated (Denzin 1970). To accomplish this, a focus group study was conducted in the fall of 2000. The goal of this research was not to replicate the 1979 study but to ask a smaller ($N = 12$) yet comparable sample of students whether or not they thought the perspectives reported by the 1978–1979 cohort represented those held by today's students.

The results of the focus group study were subjected to an identical process of analysis. Counts of the number of students in the 2000 cohort who agreed with one or more of the collectively held perspectives identified by the 1978–1979 cohort were converted into proportions, and the differences between cohort proportions were then tested under the null hypothesis H_0: $P1 = P2$ using the same two-sample z test at the 0.05 level of significance.

The measure of consistency between classrooms indicated that the findings were indeed a valid representation of the perspectives held by at least 68 percent of the 1978–1979 cohort. The results of the 2000 focus group study and subsequent comparison of perspectives between the 1978–1979 and 2000 cohorts revealed that the initial perspectives reported by the 1978–1979 cohort had remained stable across time.

Students are powerful determiners of the learning that occurs in their classrooms.

LIMITATIONS

Although the findings were found to be both consistent and stable, there are three limitations that may affect their generalizability. First, this study focused exclusively on elementary students. Additional research would be required to ascertain whether or not the findings represent similar perspectives by secondary and tertiary students. Second, there is a substantive body of research that suggests outside-classroom variables such as socioeconomic status may affect how well or poorly elementary students learn. The goal of this study, however, was to surface elementary students' perspectives on within-classroom variables that promote or impede learning. Consequently, the findings of this study should be viewed as an augmentation to—rather than an explanatory substitute for—extant research in this area. Finally, use of the two-sample z test to measure differences in proportional responses between the 1978–1979 and 2000 cohorts was open to minor statistical error due to unequal sample sizes ($N > 30$ for 1978–1979 cohort; $N < 15$ for 2000 cohort). To minimize potential errors in statistical inference arising from the differences in sample size, extensive qualitative data were used to corroborate the quantitative findings.

FINDINGS

Much to the chagrin of those who blame poor learning on students' general disinterest in all things academic, this study found that elementary students are genuinely interested in learning. A few within-classroom variables, however, routinely interfere with their efforts to learn well. For example, the findings indicated that almost all (96 percent) of the students in the 1978–1979 cohort thought that learning not only was important, but the most important reason for attending school.

Although nearly all students thought learning was important, they also reported that unchallenging curriculum, teacher misbehavior, overuse of cooperative learning, and inadequate instruction frequently hindered their learning.

• The vast majority (91 percent) of cohort members thought their schoolwork was unchallenging. Of this majority, most thought their schoolwork was often too easy (61 percent) and overly repetitive (59 percent). As a result, most felt bored (82 percent). Like Goldilocks in the fairy tale of the Three Bears, these cohort members thought they learned best when instructional activities were neither too easy nor too repetitious but "just right" in terms of challenge.

• A large number (74 percent) of cohort members also thought their teachers frequently misbehaved by being angry, embarrassing them, and not caring about them. Of this number, a majority reported feeling scared (58 percent) or embarrassed (70 percent), while a large minority said they felt hurt (40 percent).

• A substantial number (72 percent) of cohort members thought their teachers overused cooperative learning even though students expressed a strong preference for learning individually. When forced to work in cooperative groups, 67 percent of this number reported feeling discouraged, 72 percent said they felt frustrated, and 82 percent reported feeling bored.

• Most (70 percent) of the cohort members thought their teachers failed to teach well because they frequently got off the subject, talked too much, didn't explain things well, or were not strict enough with those who disrupted lessons. Of these members, 76 percent reported that they felt bored when teachers got off the subject or talked too much, 53 percent said they felt frustrated when teachers failed to explain things well, and 42 percent reported feel-

ing angry when teachers failed to discipline fairly and consistently. Members of the 1978–1979 cohort reported that they collectively engaged in four major reactions in response to their perspectives about these problematic issues.

1. Cohort members who thought their curriculum was unchallenging and who felt bored collectively reacted to their thoughts and feelings by tuning out to pursue other more interesting or play-like activities. Seventy-three percent tuned out by goofing off, 69 percent by socializing, and 63 percent by being inattentive.

2. Of the cohort members who thought their teachers misbehaved and who felt scared, embarrassed, or hurt, 70 percent reacted by collectively shutting down or withdrawing from active participation in lessons.

3. Those cohort members who thought teachers overused cooperative learning in the classroom and who felt discouraged, frustrated, or bored reacted by frequently doing their own thing. Seventy-two percent did this by socializing in groups, while 67 percent accomplished it by working independently to complete assignments during group time.

4. Finally, of those cohort members who thought their instruction was inadequate and who felt bored, frustrated, or angry, 71 percent conspired to keep the teacher off track by asking leading questions or telling stories to use up class time.

IMPLICATIONS

What implications do the findings from this study have for educational theory,

Much to the chagrin of those who blame poor learning on students' general disinterest in all things academic, this study found that elementary students are genuinely interested in learning.

methodology, and practice, and what suggestions do they provide for improving student learning?

The first theoretical implication is that the use of the subjectivist research paradigm has yielded new insight into the learning problem. As previously mentioned, some practitioners and policy makers have suggested that students learn poorly simply because learning is not important to them. Those who follow this line of thinking posit that students spend the majority of their time interacting with the hidden curriculum of school (Jackson 1968) and relatively little time focusing on the explicit academic curriculum. According to these individuals, students are indeed studying subject matter but not the subjects that truly matter for academic success.

While there is some evidence to suggest that this argument may be valid for tertiary and secondary students (Hidi and Harackiewicz 2000; Marks 2000), the findings from this study question its applicability to elementary students. On the contrary, elementary students care deeply about learning and perceive it to be the key reason for attending school. Indeed, elementary students indicate that they remain focused on the subjects that matter and attribute their failure to learn well to problems stemming from unchallenging curriculum, teacher misbehavior, overuse of cooperative learning, and inadequate instruction rather than to disinterest.

The second theoretical implication is that students perceive the major causes of poor learning to be situated within—rather

than outside—the classroom. In fact, the vast majority of students' perspectives on learning focused on within-classroom variables. No student, either in the 1978–1979 or 2000 cohort mentioned variables that originate outside the classroom, such as race, ethnicity, gender, socioeconomic status, or social class, as a cause of poor learning. Perhaps this is because these are adult or outsider issues—not those that routinely occupy the minds of school children.

The final theoretical implication is that the learning problem appears not to be, as others have framed it, a complicated black box that must be unpacked by years of research before learning can be substantively improved. On the contrary, this study's findings suggest that it may be much easier to improve student learning than previously thought. If schools would offer more academically rigorous curriculum, hire teachers who teach well and comport themselves properly, and provide more opportunities for individual rather than cooperative learning, elementary students say that learning might improve significantly for them.

The findings also contribute to research methodology in three important ways. First, the model of student perspective based on the work of Becker, Greer, and Hughes (1968) clearly demonstrates that it is not possible to understand why students learn well or poorly without understanding the thoughts and feelings that underlie their learning-related behavior. This study also noted that researchers often have attempted to work the model backward, trying to decipher thoughts and feelings simply by observing student behavior. Such an approach leaves research open to possible contamination by the fallacy of objectivism (the substitution of one's own perspective for that of the subjects under study). Because the model proved to be highly effective for bringing to light student perspec-

tives on learning in the elementary school, it might be similarly applied to other educational problems that have not been satisfactorily explained by traditional objectivist research methods.

Second, the collectively held perspective model made it possible to obtain a more accurate understanding of shared motivations behind students' learning-related behavior. Contrary to the notion that classroom behavior is often a congeries of random and disjointed actions, this model revealed that many behaviors are often well coordinated.

Finally, participating observation was shown to be an effective method for helping students become more articulate spokespeople about their schooling and learning experiences. Respondent-driven interviewing allows students to formulate their own questions as well as their responses, and in doing so, gives them free reign to talk about the learning-related issues that matter most to them. By following up their comments with probes, students can be encouraged to constantly refine and clarify their thoughts and feelings, thereby ensuring that what emerges from interviews is indeed their own unique perspective and not an adult interpretation of what they say.

Because the causes of poor learning appear to be few rather than many, to be simple rather than complex, and to be within the control of teachers and schools, this study also has significant practical implications. For purposes of clarity, the discussion of these implications has been divided into four parts, each addressing one or more of the core learning problems identified by students.

Unchallenging Curriculum

Unchallenging curriculum has been shown previously to be a significant problem in American schools. For example, Flanders (1987) examined three commonly

used mathematics textbooks to determine the degree of challenge they contained as measured by the quantity of new material presented on each page. He found that the amount of new learning required dropped off dramatically between sixth and eighth grades, making the texts only marginally challenging for students in these grade levels. In a similar finding, Schmidt, McKnight, and Raizen (1997, 122) found that "official curricular guides [and] textbooks . . . can be characterized as 'a mile wide and an inch deep.'" They found the majority of curriculum offered to American students was unfocused, lacking in sufficient depth and specificity, and laboriously repetitive from year to year.

This study offers two recommendations for making school curriculum more challenging. First, the level of difficulty in the curriculum should be matched with individual learners' skill levels. Students appear to learn best when their curriculum contains a degree of challenge that is equal to or slightly greater than their current skill and/or knowledge levels. As learners master specific skills, the level of difficulty should be increased commensurately. When forced to choose between assigning work that may be too easy or too difficult, teachers should err on the side of challenge.

Second, while a certain amount of repetition in curriculum content and process can effectively reinforce new learning and maintain skills over time, such necessarily repetitious work should be used judiciously. Teachers should not use repetition to "drill and kill" students by using skill-maintenance activities such as busywork,

Because the variables that appear to cause poor learning lie within the classroom, virtually every educator in America can successfully manipulate them.

punishment, or sponge activities to soak up unplanned classroom time. Overuse of repetition can teach students that a particular subject area is easy to master and requires little effort to get the answers right. When these learners encounter new and challenging learning experiences, they may not be prepared to exert the amount of time and energy necessary to master new material successfully.

Teacher Misbehavior

Cotton (1999, 409) noted, "Few would argue that a harsh or critical classroom environment is preferable to a supportive one in helping students to learn successfully. . . . Yet, research . . . shows that teachers' behavior can sometimes feel disobliging to students without the teachers' knowing it or intending to produce that effect." The findings from this study confirm Cotton's assertion. It was clear from comments gathered in the 1978–1979 and 2000 studies that teacher misbehavior is a significant problem for students and that the problem appears to have worsened over time. This finding suggests that there may be more teachers in the population today who engage in inappropriate classroom behavior on a more frequent basis than did their colleagues in 1978–1979.

So what can be done to correct this problem? First, teachers should strive at all times to maintain professional decorum in their appearance, mannerisms, and speech. Lack of such decorum often leads to discipline problems and diminished learning in the classroom. Second, they should treat students respectfully by refraining from angry outbursts and use of inappropriate

language. These behaviors appear to damage student morale and create hostile learning environments. Instead, teachers should use sensitivity, humor, encouragement, and praise to create supportive and psychologically safe classrooms where students feel comfortable taking risks and making mistakes. Finally, teachers should let students know that they care about them. Students in this study reported that they learned more effectively in classes where they perceived that the teacher genuinely cared.

Overuse of Cooperative Learning

This study revealed that individual rather than cooperative learning may help students learn most effectively. This finding is surprising because it appears to contradict a long-standing and substantive body of research about the superiority of cooperative learning over individual learning (Johnson and Johnson 1999). Controversy notwithstanding, students may learn better individually rather than cooperatively for several reasons.

First, individual learning allows students to make choices about what to learn, how to learn, and the pace at which they learn. When students are given control over their learning, their motivation to learn and academic achievement improve substantially (Wilson 1994). Cooperative learning, conversely, removes control over learning from the individual and gives it to the group. Students are not free to make choices about content, learning modalities, and pace. This appears to diminish motivation to learn and, consequently, harms academic achievement (Deci and Ryan 1985).

Second, individual learning provides opportunities for personal recognition and reward. Most students prefer to be rewarded for individual rather than group work, and this is especially true when it comes to grades. While research has shown that individual grades are very powerful motivators (Covington 1998), this study reveals that whole-group grades may actually lower motivation to learn. Even in highly homogeneous groups, students are aware that not everyone puts forth the same amount of effort to complete learning assignments. Those who do the majority of the work and yet receive the same grade as those who put forth minimum effort often describe themselves as being ripped off or cheated by the cooperative grading scheme.

Third, research shows that when students accomplish learning tasks on their own, it heightens their sense of personal competence and improves self-esteem. Wilson (1994, 217) noted that such occurrences cause students to "experience feelings of contentment, pride, satisfaction, and confidence."

So, how can this finding about the efficacy of individual learning best inform practice? Perhaps the most important lesson is that students believe they learn academic content best when they are required to master it on their own. Students understand that others cannot learn anything for them—they must do that for themselves. Therefore, they should be given clear criteria regarding each learning task and be held personally accountable for meeting those criteria.

Students also think they learn best when teachers acknowledge and reward individual effort and accomplishments. Therefore, teachers should provide ample opportunities for students to shine as individuals—not merely as members of a group. Additionally, teachers should use an appropriate and consistent system of rewarding individual academic achievement. Such rewards are highly motivating and do not, as some have argued, harm learning and damage self-esteem. On the contrary, an individual reward is a powerful form of

feedback that helps students assess how well they are learning and provides them with information they need to take self-corrective measures.

Finally, teachers should intersperse judiciously cooperative-learning activities with individual learning tasks to teach students the skills they need to work successfully with others. Using a limited amount of cooperative learning would meet the cognitive and affective needs of those students who learn best in such settings (Covington 1998).

Before leaving this discussion of cooperative learning, it is important to note that additional research is needed to determine whether or not individual learning actually does produce greater academic achievement than cooperative learning. Although some have argued that the data about the superiority of cooperative learning appear rather conclusive (Wulff, Nyquist, and Abbott 1987), Johnson and Johnson (1999) reported that when more than 375 studies comparing the effectiveness of cooperative, individualistic, and competitive learning were considered, there was only a .03 difference in the effect size measuring the efficacy of cooperative learning (.67) and individualistic learning (.64). This insignificant difference provides sufficient cause to question the claim that cooperative learning produces greater academic achievement than individual learning and presents a cogent argument for further investigation of the claims made by cooperative learning advocates.

Inadequate Instruction

Though this study provides several suggestions for improving students' instructional experiences, a comprehensive review of effective teaching practices is beyond its scope. The practical implications for improving instruction presented here focus only on those pedagogical issues that were raised by students in this study.

First and foremost, students learn most effectively when teachers explain lesson material well, check for understanding, and reteach material as necessary. This process of teach-check-reteach is known as *mastery learning* and is based on the assumption that all students can learn given appropriate time. In mastery learning, clear standards are established by the teacher, and requisite instruction, time, and feedback are provided to help each student master the lesson material at a specified criterion level. If students do not meet the criterion, they are provided additional time and instruction to help them attain the learning objective. This process continues until all students have mastered the content.

Second, students learn best when teachers avoid unnecessary digression during instruction. When teachers frequently go off on a tangent or allow students to do so, they confuse students and waste valuable instructional time. Teachers also should be cognizant of the fact that if students know it is easy to get them off track, the students will conspire to do so when it meets their needs. They do this by encouraging teachers to tell stories or by asking leading questions that steer teachers away from what students perceive to be boring lesson topics. Students often become so skillful at this gambit that many teachers are unaware that students are manipulating them.

Third, students learn well when teachers limit the amount of teacher talk during lessons. While a certain amount of lecture is necessary during most lessons, successful teachers understand that talking is not always teaching and listening is not always learning. Hence, learning is enhanced when teachers skillfully balance lecture and activity to keep students engaged with content throughout lessons.

Finally, students learn best in environments where teachers establish and consis-

tently enforce classroom rules. Both correlational and observational research supports this assertion about the necessity of an orderly environment for optimal learning (Cotton 1999). Students learn more effectively when teachers begin class promptly, reinforce positive behavior, stop disruptions quickly, and apply rules fairly to all students.

DISCUSSION AND CONCLUSION

Numerous studies have been undertaken in an effort to create learning interventions and reforms that will improve the academic performance of American school children (Block, Everson, and Guskey 1999). These efforts have produced a considerable body of research about effective teaching and schooling, and some of this knowledge has been translated into a set of best practices that currently guide American educators.

However, as evidence from the Third International Mathematics and Science Study–Repeat (TIMMS–R) has shown, American students continue to learn less successfully than their peers in other countries (Hoff 2000). This raises an interesting question. Given our extensive knowledge about the practices that promote optimal learning, why does the rising tide of mediocrity first identified in the United States National Commission on Excellence in Education's 1983 publication *A Nation at Risk* continue to plague American schools? The findings from this study provide several insights that may help answer this question.

First, the findings argue that effective reform and improvement efforts must take into consideration students' perspectives on schooling and learning. Without a clear understanding of the subjective meanings students assign to their behavior, future research may continue to be plagued by the fallacy of objectivism. Second, the findings argue against the notion that elementary

students learn poorly simply because learning doesn't matter to them. The results of this study clearly indicate that these students believe learning to be the raison d' être for school.

Finally, the findings call into question research that places blame for poor learning on factors outside of school. While issues such as race, ethnicity, gender, socioeconomic status, and poverty undoubtedly influence students' ability to learn well, the root causes of poor learning appear to lie squarely within the classroom. Indeed, the results of this study indicate that only a few, alterable, within-classroom variables related to curriculum, instruction, teacher behavior, and cooperative learning hold the key to substantially improving learning in the elementary school. Because the variables that appear to cause poor learning lie within the classroom, virtually every educator in America can successfully manipulate them. One does not need an advanced degree to add challenge to lesson content, to comport oneself professionally in the classroom, to use the principles of effective instruction, or to encourage individual achievement as well as cooperative effort.

These appear to be relatively straightforward solutions. Why, then, are they not the focus of most current educational reform efforts? Perhaps because it has become more lucrative and interesting for some reformers to explore the effects of politically popular issues than to focus on well-documented and less scintillating problems such as unchallenging curriculum or inadequate instruction.

Billions of dollars in research monies are awarded each year for innovative studies that investigate politically fashionable issues, and the mantra that often guides current research is no longer "What works?" but "What's new?" This may explain why a significant number of current studies are looking everywhere

but the classroom and considering everything but the student perspective to explain why school children learn well or poorly. As long as research continues to ignore or marginalize the student per-indeed.

spective and remains focused on issues outside the walls of the classroom and beyond the control of schools and teachers, the prospects for developing truly effective learning interventions and reforms may remain dim

REFERENCES

Becker, H. S., B. Geer, and E. C. Hughes. 1968. *Making the grade: The academic side of college life*. New York: John Wiley and Sons, Inc.

Block, J. H., S. T. Everson, and T. R. Guskey. 1999. *Comprehensive school reform: A program prospective*. Dubuque, Iowa: Kendall/Hunt Publishing Company.

Corsaro, W. 1985. *Entering the child's world: Friendship and peer culture in the early years*. Norwood, N.J.: Ablex Publishing Corp.

Cotton, K. 1999. The schooling practices that matter most. In *Comprehensive school reform: A program prospective*, ed. J. H. Block, S. T. Everson, and T. R. Guskey, 397–416. Dubuque, Iowa: Kendall/Hunt Publishing Company.

Covington, M. V. 1998. *The will to learn: A guide for motivating young people*. Cambridge, England: Cambridge University Press.

Deci, E. L., and R. M. Ryan. 1985. *Intrinsic motivation and self-determination in human behavior*. New York: Plenum Press.

Denzin, N. K. 1970. *The research act; a theoretical introduction to sociological methods*. Chicago: Aldine Publishing Co.

Flanders, J. R. 1987. How much of the content in mathematics textbooks is new? *Arithmetic Teacher* 35(1): 18–23.

Hammersley, M., and P. Woods, ed. 1984. *Life in school: The sociology of pupil culture*. Milton Keynes, England: Open University Press.

Hidi, S., and J. M. Harackiewicz. 2000. Motivating the academically unmotivated: A critical issue for the 21st century. *Review of Educational Research* 70(2): 151–79.

Hoff, D. J. 2000. U.S. students' scores drop by 8th grade. Other nations best U.S. in math, science. *Education Week* 20(15): 1, 20.

Jackson, P. W. 1968. *Life in classrooms*. New York: Holt, Rinehart, and Winston.

Johnson, D. W., and R. T. Johnson. 1998. *Learning together and alone: Cooperative, competitive, and individualistic learning*. Boston, Mass: Pearson, Allyn, and Bacon.

Marks, H. M. 2000. Student engagement in instructional activity: Patterns in the elementary, middle, and high school years. *American Educational Research Journal* 37(1): 153–84.

Schmidt, W. H., C. C. McKnight, and S. Raizen. 1997. *A splintered vision: An investigation of U.S. science and mathematics education*. Dordrecht, The Netherlands: Kluwer Academic Publishers.

Spradley, J. P. 1979. *The ethnographic interview*. New York: Holt, Rinehart, and Winston.

Spradley, J. P. 1980. *Participant observation*. New York: Holt, Rinehart, and Winston.

Steinberg, L., B. B. Brown, and S. M. Dornbusch. 1996. *Beyond the classroom: Why school reform has failed and what parents need to do*. New York: Simon and Schuster.

United States National Commission on Excellence in Education.1983. *A nation at risk: The imperative for educational reform: A report to the nation and the secretary of education, United States Department of Education*. Washington, D.C.: The Commission.

Wilson, J. T. 1994. Situational motivation: Structuring classrooms to enhance intrinsic motivation to learn. Ph.D. diss., University of California–Santa Barbara.

Wulff, D., J. Nyquist, and R. Abbott. 1987. Students' perceptions of large classes. In *Teaching large classes well*, ed. M. G. Weimer, 17–30. San Francisco, Calif: Jossey-Bass.