ABSTRACT
        A study examined students' motivations for
participating in literacy tasks, especially which motivations
prevailed and how these motivations varied in different contexts.
Previous literature indicated that contexts in which students
perceived that they had autonomy, opportunity for social interaction,
and coherence (connections to other learning activities) would be
likely to arouse intrinsic motivations, such as involvement and
curiosity. Students in grade 3 and grade 5 classrooms were
videotaped. In their usual team groups, small teams participated in
normal classroom literacy lessons and also in investigator-designed
activities. Immediately after the videotaping, students were
interviewed to determine their motivations and their perceptions of
the characteristics of the context. Grade 3 students reported more
intrinsic motivations when they perceived the context to be socially
supportive; however, grade 5 students' report of intrinsic
motivations was not linked to their perceptions of the social
characteristics of the context. Grade 5 students reported higher
motivations when the content was perceived as autonomy supportive;
and grade 3 students did not express higher motivation based on the
perceived autonomy support. Findings underscore the importance of
student perceptions of context. (Contains 34 references, and 7 tables
and 1 figure of data.) (Author/RS)

How Do Classroom Characteristics Influence Intrinsic Motivations for Literacy?

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NRRC National Reading Research Center

About the National Reading Research Center

The National Reading Research Center (NRRC) is funded by the Office of Educational Research and Improvement of the U.S. Department of Education to conduct research on reading and reading instruction. The NRRC is operated by a consortium of the University of Georgia and the University of Maryland College Park in collaboration with researchers at several institutions nationwide.

The NRRC's mission is to discover and document those conditions in homes, schools, and communities that encourage children to become skilled, enthusiastic, lifelong readers. NRRC researchers are committed to advancing the development of instructional programs sensitive to the cognitive, sociocultural, and motivational factors that affect children's success in reading. NRRC researchers from a variety of disciplines conduct studies with teachers and students from widely diverse cultural and socioeconomic backgrounds in pre-kindergarten through grade 12 classrooms. Research projects deal with the influence of family and family-school interactions on the development of literacy; the interaction of sociocultural factors and motivation to read; the impact of literature-based reading programs on reading achievement; the effects of reading strategies instruction on comprehension and critical thinking in literature, science, and history; the influence of innovative group participation structures on motivation and learning; the potential of computer technology to enhance literacy; and the development of methods and standards for alternative literacy assessments.

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How Do Classroom Characteristics Influence Intrinsic Motivations for Literacy?

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Abstract. *We examined students' motivations for participating in literacy tasks. We were interested in which motivations prevailed and how these motivations varied in different contexts. From previous literature, we expected that contexts in which student perceived that they had autonomy, opportunity for social interaction, and coherence (connections to other learning activities) would be likely to arouse intrinsic motivations, such as involvement and curiosity. We videotaped students in grade-3 and grade-5 classrooms. In their usual team groups, small teams participated in normal classroom literacy lessons and also in investigator-designed activities. Immediately after the videotaping, we interviewed the students to determine their motivations and their perceptions of the characteristics of the context. Grade-3 students reported more intrinsic motivations when they perceived the context to be socially supportive; however, grade-5 students' report of intrinsic motivations was not linked to their perceptions of the social characteristics of the context. Grade-5 students reported higher motivations when the context was perceived as autonomy supportive; but grade-3 students did not express higher motivation based on the perceived autonomy-support. The findings are discussed in relation to previous investigations of how the classroom environment sustains intrinsic motivations for literacy learning.*

Motivations for literacy can be understood in terms of goal-oriented theories of motivation (Ames, 1992; Blumenfeld, 1992; Ford, 1992). In goal-oriented approaches, motivations are viewed as intentions or "reasons" for literacy activities such as reading and writing. One prominent goal-oriented motivation theory emphasizes learning goals as distinct from performance goals (Dweck & Leggett, 1988; Elliott & Dweck, 1988). In a literacy learning situation, a student with a learning goal wants to gain knowledge or experience through reading or writing; whereas a student with a performance goal wants to gain recognition or a grade to demonstrate success. Although both types of motivational goals will increase effort

and attention, the learning orientation is more likely to lead to higher-order literacy and extended time devoted to independent reading than the performance orientation (Cameron & Pierce, 1994).

To examine motivational goals for literacy, we have conducted interviews and self-report questionnaire studies with elementary school students. From student-responsive interviews (Guthrie, McCann, Hynd, & Stahl, in press) as well as questionnaire data (Wigfield, 1994), we have observed that there are 8–10 different motivations, or goals, that students seek to accomplish through literacy activities. The full set of motivations that we have observed includes the following: *involvement* (being totally absorbed in a task), *curiosity* (learning content through reading), *challenge* (figuring out a complex text), *social* (interacting with others through reading and writing), *emotional tuning* (creating good feelings through literacy), *compliance* (performing a reading or writing task to meet the demands of the teacher or the assignment), *recognition* (reading or writing to gain tangible rewards such as gold stars or points), *competiveness* (being the best at a literacy task), *work-avoidance* (aversion to literacy tasks), and *self-efficacy* (confidence as a reader and writer).

In our theoretical perspective on literacy engagement, these motivations for literacy are linked to a variety of cognitive strategies as motivations develop, strategies are learned, and learners increase their capacities to engage with text. Both the motivation and cognition strategies are enhanced by a number of district dimensions of the classroom context, depicted in Figure 1, according to a variety of recent studies (Blumenfeld, 1992; Ford, 1992; Pintrich & Schrauben, 1992).

Although we believe that all of these motivations are strategies for literacy are likely to be important in schooling, we examined a limited set of them in this investigation. This study focused on the motivations of involvement, curiosity, challenge, and social interaction. These motivations were relatively learning-oriented and intrinsic to the learner (e.g., internalized as goals of reading and writing); whereas some of the other motivations that were frequently reported by students, such as compliance and recognition, were relatively more extrinsic to the learner (Deci, Schwartz, Scheinman, & Ryan, 1981; Gottfried, Fleming, & Gottfried, 1994). We were especially interested in these intrinsic motivations because evidence from a meta-analysis of motivation (Cameron & Pierce, 1994) and studies related to self-determination theory (Deci, Vallerand, Pelletier, & Ryan, 1991) suggest that intrinsic motivations are more likely than extrinsic motivations to support long-term literacy activities, such as reading widely and frequently.

Previous studies suggest that each of the motivations of interest to us, involvement, curiosity, challenge, and social interaction, may energize extended literacy activities. For example, level of *involvement* in a recreational activity predicted the amount of time students spent and the amount of enjoyment students derived from participation in the activity (Elliott & Harackiewicz, 1994). Likewise, students who were *curious* to learn the content of a course spent relatively large amounts of time and used relatively high strategies to gain

Learner		Issues in this Study		Context
Strategies	**Motivations**			
Search Comprehend Represent Problem Solve Communicate	Involvement Curiosity Challenge Social Interaction Emotional Tuning Compliance Recognition Competitiveness Work-Avoidance Self-Efficacy	**Involvement** **Curiosity** **Challenge** **Relatedness**	**Self-Direction** **Social** **Coherence**	Observational Conceptual Metacognitive Self-Directive Collaborative Self-Expression Coherence

Figure 1. Promoting Literacy Engagement: Theoretical Framework

knowledge from books and lectures in the course (Pintrich & de Groot, 1990). When students were *challenged* by working on tasks of optimal difficulty and complexity, amount of time and attention were enhanced and literacy activities were enjoyable (Csikszentmihalyi, 1990; Miller, Adkins, & Hooper, 1993). Finally, students with *social* motivations for participating in literacy activities were likely to share books, ideas, and writing with other students (Wentzel, 1994). These findings suggest that the intrinsic motivations of involvement, curiosity, challenge, and social interaction will activate students to generate their own literacy learning activities, which are most likely to lead to enhanced literacy competencies.

Previous research also suggests that characteristics of the classroom context influence students' intrinsic motivations. One productive perspective in this regard is self-determination theory, which emphasizes the importance of intrinsic motivations for independent, self-directed learning. Deci and his colleagues (1991) present evidence that three aspects of the classroom environment are likely to influence intrinsic motivations for literacy learning: support for student autonomy, support for relatedness and social interaction, and support for self-perceived competence.

Drawing on Deci's theory (Deci et al., 1991), Skinner and Belmont (1993) reported that students' intrinsic motivation increased during the course of a year when teachers supported student autonomy by encouraging free expression of opinions, providing choice of learning tasks, and inviting students to participate in decision-making. Autonomy-supportive teachers were associated with increases in student persistence, effort, attention,

and enjoyment in classroom activities. Grolnick & Ryan (1987) substantiated these findings by showing that teacher support for student interests, goal selection, and participation in classroom decision-making were associated with student levels of intrinsic motivation.

A second characteristic of the classroom environment that is linked to intrinsic motivation is social interaction. As Ames (1984) and Deci et al. (1991) have shown, a context in which students feel supported by peers and teachers is more likely to foster intrinsic motivation than more individualized, solitary learning situations. In a literacy learning study, Meloth and Deering (1994) reported that cooperative groups were more cohesive and productive when the teacher emphasized the interest-value of the topic than when the teacher emphasized tangible rewards such as gold stars and points. Corroborating this outcome, Guthrie et al. (in press) showed that students who interacted socially by sharing books, writin collaboratively, and doing homework with peers were more intrinsically motivated to read widely and frequently than students who were less socially interactive. At least two experimental-interventional studies have shown that the combination of opportunity for social interaction, an abundance of reading materials, and teacher emphasis on free reading enhanced the time students spent devoted to reading (Morrow, 1992; Stevens, Madden, Slavin, & Farnish, 1987). These studies confirm the importance of establishing a community of learners in the classroom (Brown, 1994).

A third characteristic of the classroom context that may be expected to influence motivation is the coherence of the learning situation. "Coherence" is the extent to which literacy learning tasks are related to other academic learning situations in the day, week, or month of the students' school-life, or to students out-of-school experiences. For example, if the topic being used in language-arts is the same as the topic that is studied in science, coherence is higher than if the topics in language-arts are independent of those in other subject areas. Such coherence fosters attention and engagement in literacy learning (Gamoran & Nystrand, 1992).

Coherence is also fostered by "real-world" connections. Classroom contexts vary substantially in terms of the extent to which they are oriented to "real-world" experiences of students. Situations that provide opportunities for students to observe, manipulate, and interact with concrete, angible objects from their own experience are intrinsically motivating. Lepper (1988) suggested that educational activities that "maintain the functionality of knowledge in the larger world . . . may have beneficial effects on students' motivation" (p. 303). Supporting this view, Newby (1991) reported that sustained interest in classroom work was positively correlated (.61) with the perceived relevance of classroom activities. His extensive classroom observations revealed that teachers who had highly motivated students related the content of learning to students' prior knowledge or introduced "real-world" activities into the classroom. In contrast, teachers who used controlling forms of praise, punishment, and loss of privilege had students who were disinterested and work-avoidant. We did not expect that the contextual variables of support for student autonomy,

social interaction, and coherence would be associated directly with student levels of intrinsic motivation literacy activities. Rather, we expected that the association would be indirect, mediated by student perceptions. As Ford (1992) argues, actions are based on motivational goals and beliefs. If students perceive that the classroom context will enable them to pursue goals that are important to them, students will respond actively. When motivational goals and contextual supports are aligned, students will be energized to read and write to fulfill their goals. On the contrary, if students do not perceive the context to support their motivations, they will devote less effort, attention, and energy to engaging in literacy activities within that situation. We supposed that student-*perceived* autonomy-support would influence intrinsic motivation. Although measures of autonomy-support in studies of self-determination theory have included both student self-report (Skinner & Belmont, 1993) and teacher self-report (Deci et al., 1981), students' perceptions have not been examined extensively. For this study, we expected that it is not the context itself, but student perceptions of the context that influence their intrinsic motivations for literacy.

To relate existing motivation theory to literacy learning, this investigation examined the following questions: (1) Does perceived autonomy in the classroom context influence students' intrinsic motivations for literacy activities?; (2) Does perceived opportunity for social interaction in the classroom context influence students' intrinsic motivations for literacy activities?; (3) Does perceived coherence of the classroom context influence stu-

dents' motivations for literacy activities?; and (4) What are the relationships between actual and perceived support for autonomy, social interaction, and coherence?

Method

Naturally Occurring Contexts

Subjects. Participants were 8 third-grade and 8 fifth-grade male and female students in two classes from a public elementary school in a metropolitan area of the Eastern United States. A range of ability and ethnic backgrounds was represented in this population. Students in each grade were in two heterogeneous groups consisting of at least 4 but not more than 6 students per group. The student groups were used by the classroom teacher in the natural classroom setting. In the third-grade classroom, the students sat in their group throughout the day. The fifth-grade group configurations existed only for the reading period. All of the groups had worked together for a minimum of 2 weeks prior to the start of the study.

Videotaping procedures. Each videotaping session included at least 30 min of natural classroom activities during reading. Taping was begun 5 min into reading class and continued until the teacher began the next class (usually 40 min later). The episodes were taped during reading class in each of the classrooms. The total taping process for this section of the study encompassed a 6-week period with two episodes utilized for each grade. Each videotaping session was scheduled with the teacher at least one day in advance although the teach-

ers were asked not to modify their normal instruction plans in any way because of the taping. Groups were selected based on heterogeneity of members, number of participating members (considering absences), and ease of videotaping. The camera was placed in the back of the classrooms and a cordless microphone on a student's desk recorded the target group's discussions. The camera was stationary, on a tripod, with a set zoom on the group being taped. To minimize the disruption of normal literary activity, at least two pilot tapings were done in each grade to acquaint students and the teacher with having the camera in the room.

Investigator Designed Contexts

Subjects. Participants were 8 third-grade and 8 fifth-grade male and female students from the same classrooms used in the natural contexts. Two heterogenous groups consisting of 5 or 6 students in each group for third grade and 6 students in each group for fifth grade participated. The student groups had been determined by the classroom teacher in the natural setting of class. Again, in the third-grade classroom, the students sat in their group all day long, while the fifth-grade group configurations existed only for reading period. These groups had worked together for a minimum of 2 weeks prior to the start of the study.

Tasks. The topic of birds was used in both third-grade tasks, and dinosaurs was the topic of the fifth-grade tasks. One open and one closed task, based on Turner's (1995) analysis of these task types were used on each topic in the classroom. The closed task for third grade

required group members to answer a series of multiple-choice questions about birds. Each group member was provided a packet of information about birds and how they adapt to live in urban areas. Students were instructed to use the information from the packets to answer the questions. Each packet consisted of three pages with each page addressing a different aspect of how birds adapt to urban settings. All children in the group had the same information in their packets, but the order of sheets in each packet was varied. The top sheet of each packet was printed on a colored piece of paper. The children were told that the colored sheet of paper had the information they were to be an expert on, and they should share this information to help their group answer the questions. The nine multiple-choice questions were presented on a large poster board and the group was told that all members must agree on each answer. One child was selected by the experimenter to be the recorder.

The fifth-grade closed task resembled the third-grade closed task in all aspects except the topic and questions were changed. In fifth grade, students were given packets of information about five different dinosaurs and how they lived. Students were told to use the packets to answer the questions, and to specialize in the dinosaur described in a colored top sheet of the packet. The question chart contained 15 multiple-choice questions with one student designated as the recorder.

The third-grade open task asked students to generate ideas about where a particular species of bird would live and eat in the city. Each group chose a species of bird, and each student was provided the same three-page

information packet used in the closed task. Groups were given a sheet of paper with two problems to solve: (1) identify good locations for your bird to find food and (2) determine where your bird might make a home in a city. Fourteen black and white pictures of city scenes were arranged on a large poster board such that all the group members could see the pictures. In this collection of pictures, there were many possible correct solutions for each problem regardless of the bird chosen. When the group agreed on the best answers to the questions, the locations were designated on the poster board with a target arrow reading, "the best place for our bird to eat is here" and "the best place for our bird to make it's home is here."

The fifth-grade open task used the same information packets as those used in the fifth-grade closed task. However, in the open task, students were asked to design a new dinosaur. The students were given a large piece of poster board on which to represent their created dinosaur.

Procedures. Each of the four groups completed the grade-appropriate open and closed tasks. The order of presentation was counter-balanced in each grade. The tasks were administered by two different researchers, each was responsible for a different grade level. For each of the four tasks, a maximum of 40 min was allowed with no group exceeding this time on either task.

In the closed task situations, in both grades, the researcher placed the poster board with the multiple choice questions in the center of each group. The experimenter handed each student an information packet, and designated one student in the group to be a recorder, and gave that child a marker. The children were told that their groups would agree on an answer, and the recorder would be responsible for circling the answer on the poster board. The children were allowed to ask the researcher questions about the procedure and notify the researcher if there was a difficulty or when they were finished completing the closed task. The students were given up to 30 min to complete the activity.

In the open task situation for the third-grade students, the students were allowed to vote by a show of hands for one of four possible birds to learn about for the task. The researcher then placed the appropriate packets for that bird in the center of the group, and instructed the children to choose a packet to read. A sheet of paper with the two focus problems for the task was placed in the center of the group. The researcher told the children to read as much of the information as they felt was necessary to answer the two questions about their bird, and to underline the possible solutions that could be found in the packet. The children were given up to 15 min to work as a group with these materials. If the students had a question, problem, or were finished with this part of the task, they could summon the researcher, who reviewed the students' responses and provided feedback.

When the group indicated that they were finished reading the information packets for solutions to the problems, the experimenter asked them to put their pencils away, and presented them with the large poster board that depicted city scenes. The children were instructed to refer to their information sheets,

and transfer the possible solutions they had underlined to the images on the poster board. The students were asked to work as a team to agree upon the best place for their bird to find food, and the best place for their bird to live as represented by the pictures. The group was given up to 15 min to discuss their answers and vote on the two locations. When the group signaled that the task was completed, the experimenter asked the children what decisions they had reached. Then, two "target arrows" were placed where the children indicated that their bird would eat, and where their bird would live. The experimenter provided feedback for the students' choices.

In the open task for the fifth grade, students were given the information packets and told that they should read the packets to learn about different kinds of dinosaurs. They were told that after they learned about these dinosaurs, they would be given a piece of paper on which to write or draw about a new dinosaur that they designed. They were told that they would be given a total of 40 min to work and that the time should be divided in half with 20 min to learn about dinosaurs and 20 min to design a new dinosaur. They were told to inform the experimenter whey they were ready to start on designing their dinosaur. The researcher monitored each group and informed them when 20 min had expired and then suggested that they should start thinking about their dinosaur design. To construct their dinosaur, each group was given a large, plain piece of construction paper and a pencil. The dinosaur could be represented in any way the students wished, either through writing or drawing or both. The group could decide who

was to mark on the paper and what form these marks should take.

Interviewing Students

For both naturally occurring contexts and structural contexts students were interviewed following the videotaping. Beginning as soon after videotaping as possible, 4 members of each group were taken out of the classroom individually, to be interviewed. The order of choosing the students was random and the same interviewer conducted all of the interviews. On the way to the private room, the interviewer established rapport with the student with an introduction and an assurance that cooperation would be appreciated and that the student would not be graded or judged in a way that would affect that student or the group. Upon reaching a small, private room, the researcher said, "We are going to discuss what you were doing on the videotape that we just finished taking in your classroom. I would like to ask you about your activities and ideas about your work. We will watch for a few minutes; then you can tell me your thoughts about what you were doing. Do you have any questions before we get going?" Once inquiries were satisfied, the interview process began.

For the natural study, each student was shown two segments of the videotape and the interviewer asked questions about the activity on the videotapes. First, students were shown a minute and a half of activity occurring 5 min into reading class, and interviewed. The students were then shown a minute and a half of activity occurring 20 min later in the tape, and interviewed using the same questionnaire.

Table 1. Questions for Contextualized Motivations for Reading

I.   *Motivational Questions*

    1. What were you doing on that section of the tape we were just watching?
       What were you _____ (reading/talking/writing/listening) about?
    2. Why were you _____ (reading/talking/writing/listening) in that situation?
    3. What would have happened if you hadn't been _____ (reading/talking/writing/listening)?
    4. What did you think about the _____ (books/materials/pictures)?
       Why were you interested in them?
       Were they difficult for you to understand?
       Did you like those _____ (books/materials/pictures)?
    5. What did you think about the _____ (book/discussion/project/assignment) you were working on?
    6. Was there something else you would rather have been doing? Tell me more.

II. *Contextual Questions*

  A. Autonomy

    7. Who decided the general activity you were doing or work on?
    8. Who decided the specific _____(material/book/questoin/topic) you were working on?
    9. Who makes up the rules for this activity? What were they?
   10. How do you know when you are finished _____ (reading/talking/writing/listening)?
   11. Within the information about _____ you were working on, did you have a choice about what information you could use for answers?
   12. How did you get the information you used to _____?

  B. Social

   13. Were you working mostly on your own or were you working mostly with others in the part of the tape? What do you mean?
   14. Did *you/group/partnership* have a choice in deciding how to show what you knew when you were _____?
   15. Who decided who you were working with?
   16. What did you think about the students you were working with? Why is that?
   17. Was there a leader in your group for that task?
   18. What were you doing for this group?
   19. Does the group use your ideas and suggestions? How?
   20. Do you feel like you are an an important part of the group? Why?
   21. Did you like working with that group or do you like working on your own?

  C. Coherence

   22. Is the work you were doing similar to other schoolwork you have done this week or this month? How?
   23. Was your _____ (reading/talking/writing/listening) related to other things you are reading or doing in school?
   24. Tell me other activities you have done in school that were like what you were doing on the videotape? How are they the same or different?

Table 2. Perceptions of Literacy Contexts: Coding Rubric

The child perceives the "context" of the situation in terms of the following:

Autonomy   Opportunity for choices of the following: task, text, response type, personal, talking, completion, standard of response, content, place.

Social   Interactive behavior among a group as a whole, between members of a group, or between pairs, depending on teacher direction or student commitment: frequent talk, joint reading, joint goal for writing, interchange on meaning, rapt listening to peer, social process talk, commentary on peer literacy, "liking" peer(s), united success or failure, united planning, cohesion among individuals (coordinated attention), non/few isolated members, social interchange is conceptually referenced.

Coherence   Task being performed and discussed by students, and/or reviewed by teacher is judged in terms of the following: literacy process is same as the same lesson at a different time; topic is the same as topic in a different subject or lesson; continuity in topicality across subjects; literacy process is the same as a different lesson or subject; complementary literacy process; complementary science process; interdependency among literacy process over time (time phase favored for coding is 3 days to 6 weeks); knowledge used is acquired in other subjects of curriculum.

After each segment was shown, the tape was stopped and the student was asked if s/he remembered what was happening during that episode of the tape. If the student answered affirmatively, the interview began. If not, the student was given the option to view the videotape for an additional 60 sec.

The interview began with student self-identification and then followed a specific format polling student perceptions of motivations, autonomy, opportunity for social interaction, and the coherence of the task in relation to other schoolwork. This interview guideline contained 25 questions, subdivided among the topics (see Table 1). The first 6 questions were designed to elicit motivations and the remaining questions asked about student perceptions of context by addressing the following issues: questions 7–12 asked about student perceptions

of autonomy in the task, questions 13–21 asked the students about the social interaction, and questions 22–24 elicited reports of perceived coherence. The same questions were used for every interview, with limited spontaneous follow-up probing for clarification of answers. The interviewers averaged 35 min, and were audiotape recorded. The resultant audiotapes were transcribed and subsequently coded.

Coding rubrics and protocols. As a first step, the minute and a half segments of videotape that the student had viewed were coded. We constructed a rubric that permitted us to describe the context in terms of autonomy, opportunities for social interaction, and coherence with other schoolwork (see Table 2). A scale of 7 was used to assess each of these factors: (1) None, (2) Very Limited, (3) Low, (4) Moderate, (5) High, (6) Very High, and (7)

Extremely High. Each segment was rated for each aspect of context for each student. The defining characteristics for each were developed by viewing practice tapes, and working toward consensus between the first and second authors. Interrater agreement between the second author and an independent rater was 100%.

Next, the transcribed audiotapes (interviews) were coded. A rubric was developed to describe intrinsic and extrinsic motivations including curiosity, aesthetic involvement, challenge, relatedness, reading improvement, grades, compliance, rewards, competitiveness, and recognition (see Table 3). In each transcript, each motivation was assigned one of these strengths: (0)—the motivation was not reported, (1)—the motivation was very minimally reported, (2)—the motivation was moderately influential to the student, and (3)—the motivation was very strong and elaborated in the student's report. Examples of statements and their coding from actual transcripts are presented with strength ratings:

Code strength (3) for curiosity—"I thought the books were fun because they told me about, um, the species and how they would fly, and what types of speed they would go and what, if they're an insect eater or meat eater, or a snake or lizard or something like that."

Code strength (2) for curiosity—"I wouldn't have known about, um those birds, and I wouldn't have had, known how, known, what was a cardinal. I though a cardinal was something else, just a plain old baseball team or something.

And I wouldn't have known about all those birds that we um, talked about."

Code strength (1) for curiosity—[I found that interesting] "because I never worked on the roadrunner before."

Code strength (3) for aesthetic involvement—"Well, uh, we used to talk, you know, just ask a person a question and everyone answered it . . . but then we decided that we wanted to do something more fun, that we could get into it more, so we decided to pick characters and stuff."

Code strength (2) for aesthetic involvement—"I thought it was fun. And I thought it was interesting to do that 'cause it's about birds and I like birds. So, I like that, well, it's just, really nothing though, I had fun. I don't know about them but I had fun in the subject."

Code strength (1) for aesthetic involvement—"Mmm, they [project questions] were pretty good."

Code strength (3) for challenge—"Hard. I thought it was going to be hard, but I figured out, in fact it is going to be hard because you have to get your own information, they're not providing you with books or anything. He sort of is, but he lets you go to the library, he takes our reading group to the library to get encyclopedias and stuff. But, some troubles you have is if you, like if you're doing a cactus, I mean I am, I'm gonna do a fern, and I've looked through tons of books, and I can't find one thing on ferns or cactus. Well I found cactus in a book, but all it said was that . . ."

Code strength (2) for challenge—"Yes, 'cause um, some of those books that I read they was like, hard to, some

of them would have big words and I wouldn't understand them and I'd have to look them up in the dictionary or I would have to ask the teacher and I didn't want to do that because she would be working with somebody else or something."

Code strength (1) for challenge—"It ain't, it ain't really hard."

Code strength (3) for social interaction—"I was trying to help the team to find out all kinds of different information and to help them make the decision in the, write down which bird we're going to invent. And, um, we talk about the idea, and sometimes I try to get them to quiet down a little."

Code strength (2) for social interaction—"I like this because I like doing projects with other people and stuff."

Code strength (1) for social interaction—"I wrote everything I could write about the roadrunner, and I was helping Jose."

Interrater agreement. Interrater agreement was established separately for each of the three groups of coding: actual context (videotape), perceived motivations (transcripts), and perceived context (transcripts). For each category, 3 third-graders were coded for both episodes and 3 fifth-graders were coded for both episodes. Therefore, a total of 12 episodes were coded for each of the three categories. Within each category, interrater standards were surpassed without coding additional episodes. To test the strength of the rubric and establish interrater agreement, two researchers used the rubric to code episodes independently. Then the scores were compared and the researchers collaborated to modify and expand definitions

within the rubric. For coding actual context, 100% agreement (within one point on a scale of 7) was achieved in each grade, for each episode. For coding the perceived context, 100% agreement (within one point on a scale of 7) was achieved in each grade, for each episode. For coding perceived motivations, 90% agreement (exact scores) on coding motivations for at least one episode in each grade was attained. Following interrater agreement, the actual context (videotape) episodes were coded by one person. The perceived motivation and context (transcript) episodes were divided between two researchers who coded entire transcripts (motivation and context) for the remaining students.

Results

Data Sources

As indicated in the method section, students were interviewed regarding their motivations and perceptions of the classroom contexts after they viewed a videotape in which they worked on a literacy activity with other students. For each student, data were available for the following motivations: involvement, curiosity, challenge, relatedness, grades, compliance, rewards, competition, and recognition. Several of these motivations were reported rarely: grades, compliance, rewards, competition, and recognition. Consequently, these were not included in the data analyses. The relatively more intrinsic motivations of *involvement, curiosity, challenge,* and *relatedness* were the motivations used in the data analysis. Each student was assigned a score of 0–3 on each

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Table 3. Motivations for Literacy: Coding Rubric

A. *Curiosity*—learn something new; understand his/her work; explore interests in the work or some aspect; improve knowledge, quality, or value; investigate task/activities to achieve adequate understanding; inquire, learn, or know about anything; deduce intricacy, subtlety, strangeness, or novelty.

B. *Aesthetic Involvement*—"get lost" while doing the task/activity; feel good/positive as a result; seek, experience, or achieve satisfaction, gratification, fruition, felicity, happiness; "get into" the task more; improve personal quality, value; gain satisfaction from task, increase self-esteem; take pleasure in, enjoy task/activities.

C. *Challenge*—learn utility/use; seek and achieve intellectual progress, build knowledge resources (when compelled); object to, take challenge, dispute, question elements of the activity; respond to invitation.

D. *Relatedness* (social)—be with friends; share with parents; to gain a partner, ally, friend, work peer; be related, associated, connected, allied in some way by a common interest with other people; be in the company of others; establish a companionship; maintain a close relationship; feel connected to others by affinity; pursue mutual or reciprocal interests; experience friendly, informal meeting and conversation.

E. *Reading Improvement*—be able to attribute meaning or explanation to what is read; be fit, able, and capable to meet reading requirements; sufficiently observe and apprehend the meaning of the written material; to reach proper level of expectation in reading; improve reading interpretation abilities; to progress in reading ability (grow); to raise ability through increased knowledge, practice, or experience in reading; efficiently observe and apprehend the meaning of written or printed text; become well advanced, adept, expert at reading skills and strategies; achieve excellence in reading performance; capitalize on reading opportunity or training to improve abilities.

F. *Compliance*—follow directions/instruction; avoid being disciplined; avoid alternative tasks; meet teacher (external) expectations/requirements; yield, conform, concede, submit, consent, or acquiesce; teacher/peer influences or task setting; demonstrate obedience to task parameters; oblige or assent to expectations for task; get activity over with.

G. *Recognition*—impress others in group or setting; gain teacher/peer approval; increase status within the group; gain acceptance from peers; seek formal acknowledgement of something as valid or entitled to consideration; be viewed/treated as a valid performer; excite attention from others; be acknowledged, admitted, approved, received by peers/teachers/parents; achieve/merit appreciation of services/actions.

H. *Rewards*—earn tangible credits; attain rank, advancement, progress, ascension; merit recognition; receive some token of appreciation, compensation.

I. *Competiveness*—excel above others; demonstrate superiority to others; improve relative position in social setting; unite/blend goals with group/peers seeking group superiority; contend with others for prize or advantage; engage in a contest within activity; strive after a goal (positive); contend for a goal in emulation or rivalry (negative).

J. *Grades*—get good grades; improve class ranking; achieve a higher degree of measured ability; demonstrate proper grade progression; match/meet a particular quality of grades as needed/desired.

Table 4. Association of Intrinsic Literacy Motivations and Perceived Autonomy Support

| | | Grade 5 Perceived Autonomy Support Combined* | | Grade 3 Perceived Autonomy Support Combined + | |
		High	Low	High	Low
Intrinsic	High	13	7	7	8
Motivation	Low	1	11	7	11

*This pattern was statistically significant at $p < .01$.
+This pattern was not statistically significant at $p < .05$.

motivation to represent the strengths of the motivations. For each student, these four motivations were reported for two different contextual situations. Student reports of context were rated on a scale of 1–7, reflecting the extent to which students perceived the context as autonomy-supportive, socially interactive, or coherent.

In both grade 3 and grade 5, 8 students participated in the naturalistic portion of the study and 8 students participated in the designed portion of the study. Every student was classified as having a high level of intrinsic motivation or low level of intrinsic motivation in each context. Each student was also classified as perceiving the context to be either highly-supportive or low-supportive of each of the three dimensions: autonomy, social, and coherence. For example, one student might have been classified as high intrinsic motivation and high perceived autonomy, high perceived social, and low perceived coherence. Students were classified in the same manner for both the naturalistic contexts and the structured contexts. Data from the two sets of contexts were combined for statistical inference testing.

Did Perceived Autonomy-Support Influence Level of Intrinsic Motivations for Literacy?

This question was examined for both grade levels, and the results are displayed in Table 4. To classify students into high intrinsic motivation and low intrinsic motivation groups, three motivations were combined. Motivations of involvement, curiosity, and challenge were summed for each student producing a scale of 0–9. Students were classified as low intrinsic motivation if they had a score of 0–2 on this combined scale. Students were classified as high intrinsic motivation if they had a score of 3–9 on this combined scale.

Students were classified as low perceived-autonomy support if they had a score of 1–3 on the scale for this dimension. Students were classified as high perceived autonomy support if they had a score of 4–7 on this scale. As Table 4 indicates, 13 students were reporting high intrinsic motivations when perceived autonomy support was high. Eleven students were reporting low motivations when autonomy support was low. These data combined reveal that in 24 out of 32 cases (75% of the

time) students reported a substantial association between intrinsic motivation and perceived autonomy support for literacy activities. This association was statistically significant according to a Chi-square test, X^2 $(1, N = 32) = 7.62$, $p < .01$. The Phi coefficient, which is interpreted like a Pearson correlation, was .55, which indicated a substantial correlation between intrinsic motivations and perceived autonomy support in these literacy contexts.

For grade-3 students, the analysis was identical to that for the grade-5 students. Students were classified as high or low intrinsic motivation and high or low perceived autonomy support using the same criteria as in previous analysis. Natural and designed context data were combined to conduct a Chi-square analysis. The Chi-square was not statistically significant indicating that there was no association between perceived autonomy support and intrinsic motivation for third-grade students.

Illustrative Cases

These two cases of fifth-grade students exemplify how relatively higher intrinsic literacy motivation was associated with relatively higher perceived autonomy support (in the first case); and how the relatively lower levels were associated (in the second case). The first case was drawn from the upper left quadrant of the naturally occurring data from Table 4; whereas the second case was drawn from the lower right quadrant of the same section of Table 4. The perceived social-support and perceived coherence are included. These cases are drawn from interviews about the natural-setting tasks.

Case 1, grade 5: Intrinsic literacy motivations.

RR: What were you doing on that section of the tape we were just watching?

S1:   We were finding out more about your environment and what troubles chopping down things is doing to our environment and why plants don't live, why plants live in a certain environment and don't live in a certain environment. And we're learning lots of new vocabulary from this like bayous. Except some people, like [*Student Name*] don't listen and they don't read and they don't know what a bayou is. But if you read and you listen and you do this project, then you understand more about environments and why that certain tree or plant has to be there. Sometimes a plant has to be there so an animal can survive, or sometimes an animal has to move 'cause that plant can only survive in that one environment. Or sometimes, that plant has to go where that animal is and adapt like if it can't live there. And a cactus, the reason it can live in that hot desert with no water is because it stores its own water and like, some plants, the reason they can only grow in one place is because it's too cold or too hot. That's why too many plants don't grow in Antarctica. I'll tell you that.

Case 1, grade 5: Perceived autonomy support.

RR: Who decided that you would be listening to directions at that time?

S1:   Well, if you were interested, you.

RR: You decided to listen?

S1:   Yeah. Because I was interested in the project.

RR: Who decided the specific instructions you were listening to?

S1:   We do. He says what you're supposed to do is make a little book, now please start on this project, and everyone will start working.

Case 1, grade 5: Perceived social interaction support.

RR: Were you working mostly on your own, when you were listening, or were you working mostly with other people.

S1:   While I was listening? On my own.

Case 1, grade 5: Perceived coherence.

RR: What about that project, was the project related to other things that you're reading or doing in school?

S1:   Well, like I told you, we did do that one little report on two plants which made it easier to do this report, and he also made it easier by saying we could do the plants we did in our report. I mean if he said we do two different other plants, we'd have to get research on two different other plants. But he made it easier because we did do something like that and we did draw a picture for it.

RR: Was that in science or reading or what class?

S1:   The plant thing? That was in reading.

RR: Reading?

S1:   'Cause we were reading that *Top Secret* book and it was about that boy that turned into a plant and then he turned the teacher into a plant. He discovered human photosynthesis. That's what else I really find difficult about reading, we have humongous vocabulary words. We have photosynthesis, one hard word every week, first week it was photosynthesis, second it was chlorophyll, and then it gets a little easier, I mean there's, and there's definitions that are even hard to find, like bayou, and annual and perennial, community. So not only do you have to know the definition of the word, you have to concentrate on how to spell it.

Case 2, grade 5: Intrinsic literacy motivation.

RR: What were you doing in that section of the tape we were just watching?

S2:   Um, discussing the *Top Secret*, *Top-Secret* book.

RR: Okay. What did you think about the, uh, the book?

S2:   It, it ain't really hard.

RR: It's not really hard? Was it interesting to you?

S2:   Mmm hmm.

RR: And was it difficult for you to understand?

S2:   Nope.

RR: Difficult for you to read?

S2:   Nope.

RR: Did you like the book?

S2:   Uh huh.

Case 2, grade 5: Perceived autonomy support.

RR: Okay. Who decided that you would, the general activity that you were working on?

S2:   Who decided? [Teacher Name].

RR: [Teacher Name] did? Who decided the specific questions you were going to ask each other in your discussion?

S2:   [Teacher Name].

RR: Okay. Who makes up the rules for your discussions?

S2:   [Teacher Name].

RR: Okay. What kind of rules are there?

S2:   Same rules.

RR: Same rules? And what were they again?

S2:   Raise your hand to speak, and cannot stand up unless you're going to the bathroom, doing homework, or sharpening a pencil.

Case 2, grade 5: Perceived social interaction support.

RR: Were you working mostly on your own or were you working mostly with other people on this part of the tape?

S2:   Other people.

RR: What do you mean?

S2:   Huh?

RR: What were you doing with the other people?

S2:   Making questions, and tellin' if they're true or false.

RR: Okay. Who decided who you were working with?

S2:   [Teacher Name].

RR: Okay. What did you think about the other students that you were working with?

S2:   It's, we had a pretty good group, and—that's all.

Case 2, grade 5: Perceived coherence.

RR: Okay. What you were doing here with the, uh, discussion, is the work you were doing similar to other school work you've done this week or this month?

S2:   Yeah.

RR: Like, uh, how is it the same?

Table 5. Association of Intrinsic Literacy Motivations and Perceived Social Support

| | | Grade 5 Perceived Social Support Combined* | | Grade 3 Perceived Social Support Combined + | |
		High	Low	High	Low
Intrinsic	High	16	6	17	2
Motivation	Low	4	6	6	7

*This pattern was not statistically significant at $p < .05$.
+This pattern was statistically significant at $p < .05$.

S2:   Math, social studies, science.

RR: How is it, how is it the same as those other subjects?

S2:   Like, social studies, yes, and science.

RR: Tell me other activities that you've done in school that are like what you've done in the videotape?

S2:   Math, science, social studies, PE, music, library, the library, mmm, different classes, outside, inside, that's all.

RR: Wow, that's a lot. How are they the same or different?

S2:   The same.

RR: How?

S2:   Same rules, same teams, same work, and same time.

Did Perceived Support for Social Interaction Influence Students Intrinsic Motivations for Literacy?

Grade-5 students were classified as reporting high levels of intrinsic motivation or low levels of intrinsic motivation using the combined motivation scale of involvement, curiosity, challenge, and social. The combined scale ranged from 0-9. Students with scores of 0-2 were classified as low intrinsic motivation, and students with scores of 3-9 on the combined scale were classified as high intrinsic motivation.

The ratings of perceived support for social interaction in the context were placed on a scale of 1-7, identical to the scale for perceived autonomy support. Students were classified as low perceived support for social interaction if they had a score of 1-3 and were classified as high if they had a score of 4-7. Data from the natural and structured contexts were combined to provided a data set for statistical analysis. The Chi-square test was not statistically significant, indicating no evidence

of an association between intrinsic motivation and perceived support for social interaction among grade-5 students.

Grade-3 students were classified with the same system that was used for grade-5 students. The results are displayed in Table 5, which indicates that a total of 17 students perceived high social support and reported high intrinsic motivations. Seven students perceived low social support and reported low intrinsic motivations. Twenty-four out of 32 (75%) individuals reported a linkage between the variables. The Chi-square test for these data was statistically significant, X^2 (1, $N = 32$) = 5.18, $p < .05$. The Phi coefficient was .47 showing a moderately high relationship between these variables for grade 3.

Illustrative Cases

These two cases show third-grade students with relatively higher (first case) and relatively lower (second case) intrinsic literacy motivations related to their perception of social opportunities. The perceived autonomy-support and perceived coherence are also included, and the case is from the natural setting section of the study.

Case 1, grade 3: Intrinsic literacy motivations.

RR: What were you doing on that section of the tape we were just watching?

S1: I was playing a little, I was playing and um, I was working on um, the bird, the roadrunner. And um, researching and writing notes.

RR: Okay. Why were you doing the research?

S1: Oh. It's like, it's part of, it's part of, I don't know!

RR: Okay. What would happen if you hadn't been doing the research?

S1: I wouldn't have known about um, those birds, and I wouldn't have had, known how, known, what was a cardinal, I thought a cardinal was something else, just a plain old baseball team or something, and I wouldn't have known about all those birds that we um, talked about.

RR: Okay. What did you think about the books that you were working with?

S1: I thought it was really fun. Because they told me about, um, the species and how they would fly, and what types of speed they would go and what, if they're an insect-eater or meat-eater, or a snake- or lizard- or something like that eater.

RR: Did you find the books difficult to understand?

S1: Yes, 'cause um, some of those books that I read, they was like, hard to, some of them would have big words and I wouldn't understand them and I'd have to look them up in the dictionary or I would have to ask the teacher and I didn't want to do that because she would be working with somebody else or something.

RR: What did you think about researching? Doing the research?

S1:   I thought it was really fun!

RR: Was there something else you would have rather been doing?

S1:   Not at that time.

Case 1, grade 3: Perceived autonomy support.

RR: Who decided that you would be researching at that time?

S1:   I wasn't there but [Student Name], and [Student Name], and I think maybe [Student Name].

RR: So the whole group decided?

S1:   Uh huh.

RR: Oh, okay. Who makes up the rules for doing research?

S1:   [Principal Name].

RR: What kind of rules are they?

S1:   Um, when you research, don't tear the books and handle carefully and don't, um, put pencils close to them because you might put marks in them, try to erase them and you erase the words. And that's all.

RR: Okay. How do you know when you've finished researching?

S1:   The project will be over or we might have to go somewhere or 'cause [Teacher Name] says you have like, 5 or 10 minutes and she'll call somebody's name to pick up the papers.

Case 1, grade 3: Perceived social interaction support.

RR: Were you working mostly on your own or were you working mostly with other people when you were doing your research?

S1:   Let's see, sometimes I would work—Both.

RR: Really!

S1:   'Cause sometimes she would give us a separate papers, but well, we would, we would, I would work with other people.

RR: So, do you think a little bit of both?

S1:   Uh huh, 'cause when I don't know something, a word or something, they would help me or something.

RR: What did you think about the students you were working with?

S1:   They're really interesting people.

RR: Interesting people? Why?

S1:   Because, some of them are smarter, and um, some of them I like to work with and stuff.

RR: Okay. Was there a leader in your group when you were doing the research?

S1:   No. We all were.

RR: You all were doing research? What were you doing in the group?

S1:   I was cooperating and helping um, listening and uh, sharing my ideas and mostly helping though.

RR: Okay. Did anyone in the group use your ideas and suggestions?

S1:   Yes.

RR: How?

S1:   When they would, um, when they don't know something.

RR: So they use your ideas when they need help?

S1:   Yeah.

RR: Do you feel that you're an important part of that group?

S1:   Yes, I do.

RR: Why?

S1:   Because um, they like me and they uh, cooperate with me and they um, they that's all I could think of right now.

Case 1, grade 3: Perceived coherence.

RR: Okay. Is the work that you've done, the research, similar to schoolwork that you've done this week or this month?

S1:   Yes, 'cause all the things that we do is similar.

RR: Okay. How is it similar?

S1:   'Cause we always working in birds. We go outside and look for birds, and we um, we have, we find birds.

RR: You find birds, where do you find birds?

S1:   My bird was sitting on the ground.

RR: Was it a baby?

S1:   Yeah. It was a little finch, a finch.

RR: What did you do with it?

S1:   It died, so we said, they took the skin off, and let it dry and they was going to take the skeleton and show it to us.

Case 2, grade 3: Intrinsic literacy motivations.

RR: Good. What were you doing in that section of the tape we were just watching?

S2:   Um, We had we went into a chapter of *White Bird* and she told us to write um, four questions about the um, second chapter, that we didn't read yet. We had to think about what was gonna happen and I was writing my four questions, and she told me when [Student Name] comes back, I could work with [Student Name].

RR: Okay. Why were you writing question in that situation?

S2:   We were writing questions about, we had to write questions so that she would know of, that we read the story, that if

we cheated or something she need to know that, if she took our books or something that we would read it, that's what we had to write about.

RR: Okay. What would happen if you hadn't been writing those questions?

S2:   We would have got a bad grade or some-thing and um, well and then she would call our parents 'cause this is a good subject that we have to talk about. She wanted all of us to do it.

Case 2, grade 3: Perceived autonomy support.

RR: Okay. Who decided the specific questions that you would be working on?

S2:   I think it was um, the teacher and the students, because she wanted us to um, write questions, tell her about chapter one and two.

RR: Okay. Who makes up the rules for writing questions?

S2:   I think it's the teacher, because she wanted us to learn more, more illustrations and um, students too, because if the students was having those questions, then we would have got it wrong. But if the teacher tells us, we could get it right. That's why I listen to the teacher, I don't listen to any-body else.

RR: Okay. How do you know when you're finished writing the questions?

S2:   Uh, I think we know when we answer questions, is when um, we finish the whole paper. When she tells us to stop, that's when we put our hands up and she turns out the lights and she gives us about 3 more minutes to write. She'll make us take our crates out and then we read a story, and finish our rough drafts and then we know we finish our rough drafts is when we get down to six pieces of paper.

Case 2, grade 3: Perceived social inter-action support.

RR: Okay. Were you working mostly on your own or were you working mostly with other people on this part of the tape?

S2:   I think we were working on our own, 'cause there was too much noise in there.

RR: What do you mean?

S2:   Like, people were um, getting up reading their books, and they were um, playing with their pencils, and just like, another student left, 'cause someone got hurt with a pencil. That's why she makes us stop um, working with each other.

RR: Okay. Do you like working with a group or do you like working on your own?

S2:   I like working with a group because if we work with a group, we won't have a hard time; but if we don't work with a group, it's more easier; but if we do work with a group, it's gonna get louder and louder; but I like to work with a group because our

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group, we have a chairperson in our group that um, tells us to be quiet 'cause we pick letters and numbers and um, the chairperson I think is [Student Name]. He tells us to um, cool down or something and that's why I like to work with a group because our group don't get too noisy and start getting out of hand.

Case 2, grade 3: Perceived coherence.

RR: Okay. When you were writing the questions, is that similar to other schoolwork you've done this week or this month?

S2: Yes. It's the same as this pollution thing that we started um, measuring stuff, and guessing numbers and estimating the thing. That's what we have to do in reading today. Guessing things and writing notes and measuring how we gonna, not measuring with a ruler, we measuring how much of paper we gonna use and how much notes we gotta do.

RR: Tell me other activities that you've done in school that were like what you were doing in the videotape.

S2: Um, I think all of my subject, because every subject we have to write notes, we have to write a response, we have to write a picture, we have to do all kinds of writing. We have to do um, writing of pictures. How we gonna um, describe a picture and stuff. I don't um, don't get to do work like reading and math and spelling and other subjects. I don't get to do that, all I do is talk about states.

Did Perceived Coherence Influence Motivations for Literacy?

For grade 5 and grade 3, the relationship of intrinsic motivation to coherence was examined. Students were classified to intrinsic motivation levels in terms of involvement, curiosity, and challenge. Students who obtained a score of 0–2 were rated as low, and students who obtained a score of 3–9 were rated as high in intrinsic motivations. Students with perceived coherence scores of 1–3 were classified as low, and students' scores of 4–7 received a high rating. For fifth grade, the Chi-square analysis showed no significant relationship between perceived coherence and level of intrinsic motivations. For third-grade students, the relationship of coherence and motivation were analyzed with the same procedures. Chi-square analysis of the combined data showed no statistically significant association between perceived coherence and levels of intrinsic motivations. In the absence of statistically significant associations, we do not present illustrative cases for this analysis, and the reader may refer to previous illustrative cases.

What Were the Relationships Between Actual and Perceived Support for Autonomy, Social Interaction, and Coherence?

The previous findings showed the perceived autonomy in the context was associated with students reported intrinsic motivations. We also examined actual autonomy support as viewed by the investigators. The investigators coded each of the contexts in terms of the support for autonomy, social interaction, and

Table 6. Association of Actual Autonomy Support and Intrinsic Literacy Motivations

		Grade 5 Actual Autonomy Support Combined*		Grade 3 Actual Autonomy Support Combined+	
		High	Low	High	Low
Intrinsic	High	10	7	11	2
Motivation	Low	2	13	12	6

*This pattern was statistically significant at $p < .05$.
+This pattern was not statistically significant at $p < .05$.

coherence from the perspective of each student in each group. The association between actual autonomy support and student reported motivations appear in Table 6. Students were classified as reporting high amounts of intrinsic motivation and low amounts of intrinsic motivation using the same procedure that was used in the previous analysis of perceived autonomy. Students were classified as high autonomy support if they had a score of 4–7 and low autonomy support if they had a score of 1–3. Students in the natural and structured studies were classified using the same criteria.

As Table 6 indicates, the combined data across natural and structured studies for grade 5 shows that 10 students reported high intrinsic motivations when the autonomy support was actually high. In addition, 13 students reported low intrinsic motivations when the autonomy support was actually low. This is 23 out of 32 students, which was a statistically significant association, $X^2 (1, N = 32) = 5.23, p < .05$. The Phi coefficient was .45 showing a moderate degree of association between actual autonomy support and report of intrinsic motivation.

Grade-3 data were also analyzed to determine the association of intrinsic motivations and actual autonomy support. Videotapes were coded by the investigators as autonomy supportive for each individual, according to the same criteria as for grade 5. The Chi-square analysis of the association between intrinsic motivations and autonomy support was not statistically significant. These findings were consistent with the perceived autonomy data for third graders. In neither the perceived nor the actual autonomy ratings was a significant association with intrinsic motivation observed for third grade. These findings are contrasted with the findings for fifth grade in which both perceived autonomy support and actual autonomy support were significantly associated with reports of intrinsic motivation.

For grade 3, the relationship between actual support for social interaction based on investigator ratings and student reports of intrinsic motivation were examined. The criteria for classification of students were the same as the previous analysis of perceived social support. The result, however, was that no statically significant association was observed.

Table 7. Association of Actual Autonomy Support and Intrinsic Literacy Motivations

| | | Grade 5 Actual Coherence* | | Grade 3 Actual Coherence+ | |
		High	Low	High	Low
Intrinsic	High	5	4	10	0
Motivation	Low	3	20	22	0

*This pattern was statistically significant at $p < .05$.
+This pattern was not statistically significant at $p < .05$.

In the combined data, 19 of the 32 cases showed an association between actual support for social interaction intrinsic motivations. However, this was only 59% of the total which could have occurred by chance.

The relationships of perceived coherence and actual coherence for grades 5 and 3 were also examined. As Table 7 shows, a significant association was observed for grade 5, X^2 (1, $N = 32$) = 4.17, $p < .05$. However, the association was not significant for grade 3. The grade-3 data reveal that when the researchers perceived the context to be coherent, the students perceived it to be coherent only 31% of the time. Researchers frequently judged the tasks in the literacy context to be coherent when the students did not, at the third-grade level.

Discussion

We explored how students' intrinsic motivations for participating in literacy activities were related to their perceptions of the classroom context. To develop an in-depth understanding of these issues, we videotaped small teams of 4–6 students from grades 3 and 5. First, we videotaped naturally occurring reading/language art lessons for 40 min. Next, we videotaped teams engaging in structured literacy activities in which we created open (creative, constructive, socially interactive) tasks and closed (convergent and individualized) literacy tasks. Immediately after each videotaping session, we interviewed each child individually as he or she viewed the videotape. Interviews with the children addressed their motivational dispositions and perceptions of the literacy-learning contexts.

The fundamental findings were that children's perception of the literacy contexts influenced the nature and strength of their intrinsic motivations for literacy activities. More specifically, intrinsic motivations of third graders (which included involvement, curiosity, challenge, and relatedness) were substantially higher when they perceived the context to be socially supportive. When they thought the situation allowed them to talk, discuss the books, exchange their writings, and clarify their confusions, these third graders were more likely to be involved, curious, and

socially interactive than when they did not perceive the context as socially supportive. For fifth graders, perceived autonomy-support influenced their intrinsic motivations for literacy. When grade-5 students thought the situation gave them freedom to choose what books they read, latitude in defining the reading tasks, opportunity to respond in their own ways, and the liberty to interact with other students if they needed to, they reported relatively high intrinsic motivations (involvement, curiosity, challenge, and social interaction). Within a 40-min period of integrated reading/language arts instruction, students' intrinsic motivations increased and decreased depending upon their perception of certain dimensions of the context. Investigator ratings of the context were not highly associated with student motivation. What influenced the students' motivations were their own personal viewpoints and impressions of the literacy learning situation. Influences of context on motivations, then, were mediated by the perceptions of students as participants in the context.

These findings may have different meanings for different groups interested in children's motivations for literacy. At present, there are at least three distinct groups with varying perspectives: the reading researchers whose first priorities are the understanding of children's literacy development, motivation researchers whose first priority is a theoretical account of motivation in schooling, and teachers whose first priority is the improvement of children's reading within classrooms. Certainly, many individuals participate in more than one of these groups; and all groups can

contribute to the understanding of children's motivations for literacy.

It is abundantly clear that reading researchers have not examined children's motivation extensively. Well known compilations of research such as *Theoretical Models and Processes of Reading* (Ruddell, Ruddell, & Singer, 1994) do not contain many references to motivations for literacy. One recent book (Cramer & Castle, 1994), published by the International Reading Association, is devoted to affective dimensions of reading and emphasizes the models of "attitude" toward reading. In those models, the term "attitude" is defined as a favorable disposition toward an activity (McKenna, 1994). Using this definition, a variety of strategies, behaviors, and environmental conditions are proposed as significantly related to "attitude toward reading." The empirical literature that was used to support the models did not include studies from the motivation field, which is justified by the fact that "attitude" was defined as "favorable disposition." Consistent with this definition, we did not attempt to address the construct of attitude, but to examine literacy motivations.

We suggest that motivations for literacy are best understood as goals for participating in literacy activities, or "reasons for reading and writing." Prior research has documented that students have a substantial number of goals for literacy including involvement, curiosity, challenge, social interaction, emotional tuning, compliance, recognition, reward, investment, grades, and self-efficacy (Guthrie et al., in press; Wigfield, 1994). Students bring these goals into the classroom and into different situations within the classroom. When the more

intrinsic goals are activated, students will learn and use strategies effectively (Pintrich & de Groot, 1990; Turner, 1995); but when the more extrinsic goals are activated (compliance, recognition, grades), students will be less likely to learn and use higher-order literacy strategies and less likely to gain knowledge from their classroom participation (Pintrich & Schrauban, 1992).

Although motivational goals are developed over a long course of time, immediate class-room contexts are vital to activating those goals. Our findings confirm previous studies that when classroom contexts support student choice, social interaction, and meaningful learning that is connected with other school activities, students are energized. They put forth effort and use high-level learning and reading strategies. At the same time, when contexts place a premium on task completion and teacher-set requirements, the students' cognitive engagement is reduced. These patterns make sense when we realize that effort and devotion to learning are started and sustained by students' motivational goals.

Within goal-oriented motivation theories two types of goals are often distinguished: learning goals and performance goals (Elliot & Dweck, 1988). Students who possess learning goals are oriented toward gaining substantive knowledge or literacy competencies in the classroom. Students who are devoted to performance goals want to succeed by gaining recognition and grades through their classroom efforts. Teachers who uphold learning goals in the classroom emphasize basic understanding and the usefulness of reading and writing. Teachers who emphasize performance goals are

likely to reward correct performance and emphasize task completion. Many teachers also possess social goals for the classroom, wanting the students to "work together" and "cooperate." Teachers view these social goals as valuable social learnings and as avenues for academic progress. Teachers also have autonomy goals for the classroom. They want students to be able to "make their own choices" and "learn to work independently." Therefore, the kinds of contexts that are important to intrinsic motivational development (Deci et al., 1981) are valued and practiced by many teachers.

Existing motivation research has shown that students' involvement-related perceptions of the context influence their intrinsic motivation. For example, Skinner, Wellborn, and Connell (1990), showed that task engagement was correlated with students' strategy beliefs for effort. Skinner et al. (1990) use the phrase "task engagement" in a way that is similar to our use of "intrinsic motivation"; and Skinner et al. (1990) use the phrase "strategy beliefs for effort" to refer to student perceptions of the context as rewarding individual effort, which is similar to our autonomy-supportive perceptions. Our findings confirmed the Skinner et al. (1990) results that intrinsic motivation is increased when students perceive the context to support individual involvement and effort.

Previous studies have shown that perceived support for social interaction in the classroom increases intrinsic motivation for literacy activities. Skinner et al. (1990) illustrated that students' intrinsic motivation was increased when they felt that the teacher personally understood and cared about them. The teacher-student relationship is one social di-

mension of the classroom. A second dimension of the social context of the classroom that influences intrinsic motivation is peer interaction. Guthrie et al. (in press) found that students who talked and wrote collaboratively with peers about books were more likely to show intrinsic motivation by reading more widely than students who were less socially interactive.

Support for student interaction with peers is often combined with support for student autonomy. Turner (1995) reported that classroom situations could be distinguished in terms of open tasks (in which students chose books, defined their activities, participated with partners, and wrote constructively) and closed tasks (in which teachers defined the reading materials, tasks, and outcomes encouraging students to work individually). In Turner's study of primary grade classrooms, open literacy tasks were more likely to be associated with persistence than closed literacy tasks, although she did not report how student perceptions were related to context. Intrinsic motivation is highly related to persistence which refers to continuing to perform an activity despite having difficulty in it. Intrinsically motivated learners will persevere through obstacles to fulfill their motivational goals.

Although the present findings confirm previous motivational studies that link classroom contexts to intrinsic motivation (Ames, 1992; Blumenfeld, 1992), the present study emphasizes the importance of student perceptions of context, as mediators of this linkage. It was student perceptions, not investigator perceptions, that were related to intrinsic motivations. Although the investigators viewed the

videotapes, knew the classroom curriculum, and discussed the situations with the teacher, the specific scenario was not frequently perceived in the same way by the investigators and students. One exception to this generalization was the perception of autonomy for fifth-grade students. In this case, investigators and students agreed significantly. However, for all groups, the characteristics of the context as experienced by the children and the characteristics of the context as perceived by the investigators differed from one another. It is reasonable that the way in which students experience the context should influence their motivations, and it was noteworthy that there was a communication gap between teachers, investigators, and students on the nature of that experience.

A developmental pattern in the influence of perceived context on intrinsic motivation was found. Grade-3 students responded positively to perceived support for social interaction, but third-grade students did not respond systematically to perceived support for autonomy and choice. In contrast, grade-5 students responded favorably to perceived autonomy support, but did not respond in a consistent way to perceived support for social interaction. This pattern is not unknown in the developmental literature. Newman and Schwager (1992) showed that grade-3 students who felt personally related and socially supported by the teacher were more likely to seek help from classmates and the teacher than students who did not feel personally supported. We consider that relatedness to the teacher is akin to perceived social support; and help-seeking is likely to occur when students are intrinsically motivated. Given these assumptions, our

findings confirm the Newman and Schwager (1992) results that social attributes of the context influence motivation for third-grade students but not for fifth-grade students; and autonomy oriented attributes of the context influence motivation for fifth- but not third-grade students. Whether this developmental trend is confirmed in other literacy learning situations is a question for future studies.

These findings have implications for teachers who are designing classroom contexts. First, classroom environments can be designed to be socially interactive and autonomy-supportive in ways that will enhance intrinsic motivational goals. Although classroom studies (Morrow, 1992) have shown that a social milieu fosters frequency of reading and positive attitudes toward reading, the principle has not yet been widely adopted by teachers. Frequently, writers who are making suggestions for teachers, emphasize activities that may improve comprehension as a way to enhance motivation. For example, reading aloud with animation is often recommended (Cramer & Castle, 1994). While this is a good practice for increasing comprehension and topical knowledge, this practice on its own is not likely to influence long-term intrinsic motivation. However, when it is integrated into contexts that support relatedness and autonomy, it can be very powerful.

Our findings underscore the importance of student perceptions of context. If students do not see that they have a choice about their books, their tasks, or their ways of learning, and if students do not see that they can talk and collaborate in learning, they are unlikely to become intrinsically motivated. One impli-

cation of these findings is that teachers should help students learn to recognize which contexts are more open, autonomous, and social and which ones are less so. While much current research emphasizes the value of collaborative contexts, teachers also need to take the next step and help students perceive when to be social, and when to exercise their freedom within the classroom. Students are not completely unaware of these situational attributes. Palmer, Codling, and Gambrell (1994) found that elementary school students reported that social relationships (friends and class discussions) were a source of reading interests, and autonomy-supportive contexts (having the freedom to choose books frequently) were related to their interest in particular books and different types of genre. Teachers can foster intrinsic motivation by creating collaborative and autonomy-supportive environments, and then helping students to become accurate perceivers of different contexts within the classroom.

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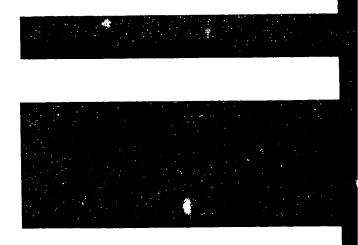Gamoran, A., & Nystrand, M. (1992). Taking students seriously. In F. M. Newmann (Ed.), *Student engagement and achievement in Ameri-can secondary schools* (pp. 4ᴼ -61). New York: Teachers College Press.

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