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The Journal OF AT-RISK ISSUES

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Effects of *Read Now* on Adolescents At Risk for School Failure

Bob Algozzine

Abstract: Reading problems are among the most prevalent concerns in America's schools; poor readers in middle school who do not receive special assistance are particularly at risk for dismal academic careers. In this research, adolescents with serious reading problems were taught critical reading skills using "Read Now," an innovative reading intervention program designed to help teachers break the cycle of failure with struggling readers and quickly improve their reading skills. "Read Now" combines state-of-the-art information technology software; a teacher's guide featuring lessons, tips, and activities; and ongoing, interactive, one-on-one teacher support from a specially designated consultant. These components work together to help teachers guide students to material appropriate to their reading abilities, provide the practice necessary to improving reading skills, and develop the five essential types of skills and strategies of effective reading instruction as recommended by the National Reading Panel: phonemic awareness, phonics, fluency, vocabulary, and comprehension. In this study, improved attitudes of students as well as positive attitudes of teachers were evident after the "Read Now" intervention. More notably, students in "Read Now" classrooms achieved impressive gains in reading performance compared to a control group of similar adolescents, demonstrating effect sizes between .35-.40 for "Read Now."

Reading is fundamental to success in our society and at the center of the latest federal, state, and local initiatives to improve education (International Reading Association, 2001; National Reading Council, 1998; No Child Left Behind Act, 2001). The ability to read is highly valued and essential for academic, social, and economic advancement. As a result of America's effective educational system, most children learn to read fairly well by about third grade; however, large numbers of young people continue to struggle with reading and remain at risk in middle school, rarely performing at the same level as their more advantaged peers (cf. Baker, 2002; Bintz, 1997; Guthrie & Davis, 2003; International Reading Association, 2001; Ivey, 1999; Ivey & Broaddus, 2000; McCray, 2001; McCray, Vaughn, & Neal, 2001). Culturally and ethnically diverse learners who are struggling readers are also more likely to experience continuous failure, to be referred and placed in special education, to experience life in the lower track in school, and to enter the world after school as a high school dropout (McCray, 2001; Winzer & Mazurek, 1998). This report examines those young people whose educational careers are in danger because they do not read well enough to succeed in school, including about 80% of students with learning disabilities who have difficulty reading (Frankenberger & Franzaglio, 1991; Kirk & Elkins, 1975; Lyon, 1985; Snow, Burns, & Griffin, 1998; Ysseldyke & Algozzine, 1995; Ysseldyke, Algozzine, & Thurlow, 2000). Low reading performance in middle schools, and subsequent academic failure and dropout after eighth grade, signals the continuing need for immediate, explicit, and effective reading interven-

tions for at-risk students, especially those with reading disabilities (McCray, 2001).

When questions arise about how best to teach reading skills, all fingers point in the direction of a few fundamental factors. According to the Committee on the Prevention of Reading Difficulties in Young Children (Snow, Burns, & Griffin, 1998), these include (a) using reading to obtain meaning from print; (b) having frequent and intensive opportunities to read; (c) being exposed to frequent, regular spelling-sound relationships; (d) learning about the nature of the alphabetic writing system; and (e) understanding the structure of spoken words. Further, this group pointed out that adequate progress in learning to read beyond initial levels depends on:

- a working understanding of how sounds are represented alphabetically,
- sufficient practice in reading to achieve fluency with different kinds of text,
- sufficient background knowledge and vocabulary to render written texts meaningful and interesting,
- control over procedures for monitoring comprehension and repairing misunderstandings, and
- continued interest and motivation to read for a variety of purposes. (pp. 3-4)

Efforts to improve reading and literacy skills also must avoid some pitfalls to be effective.

There are three potential stumbling blocks that are known to throw children off course on the journey to skilled reading. The first obstacle, which

arises at the outset of reading acquisition, is difficulty understanding and using the alphabetic principle—the idea that written spellings systematically represent spoken words. It is hard to comprehend connected text if word recognition is inaccurate or laborious. The second obstacle is a failure to transfer the comprehension skills of spoken language to reading and to acquire new strategies that may be specifically needed for reading. The third obstacle to reading will magnify the first two: the absence or loss of an initial motivation to read or failure to develop a mature appreciation of the rewards of reading (Snow, Burns, & Griffin, 1998, pp. 4-5).

These critical factors, directions, and conclusions are supported by “blue ribbon” panels (cf. National Institute of Child Health and Human Development, 2000a, b, c; National Research Council, 1998), and most literacy scholars agree that the majority of reading problems faced by adolescents and young adults are the result of stumbling blocks, obstacles, and problems that should have been addressed during early elementary school years (Baker, 2002; Guthrie & Davis, 2003; Ivey, 1999; McCray, 2001). Clearly, focusing on a few fundamental factors while avoiding challenges inherent in and/or created by faulty literacy instruction makes the most sense as a method for overcoming reading problems of struggling readers in middle and high school, especially those from diverse backgrounds (Allington, 2002; Ehri, Nunes, Willows, Schuster, & Yaghoub-Zadeh, 2001; Guthrie & Davis, 2003; International Reading Association, 2001; Ivey & Broadus, 2000; National Institute of Child Health and Human Development, 2000a, b, c; Snow, Burns, & Griffin, 1998; Winzer & Mazurek, 1998).

The program evaluated in this research is grounded in much of the latest knowledge on effective reading instruction and tutorial programs (cf. Allington, 2002; Guthrie & Davis, 2003; Ivey, 1999; Snow, Burns, & Griffin, 1998; Torgesen, 1995; Wasik & Slavin, 1993). Its primary goal is to provide a basic understanding of reading to nonreaders and those with pronounced reading difficulty by employing age-appropriate materials, promoting independence in reading, and using a consistent approach with repetition and immediate performance feedback. The program focuses on improving the five essential components of effective reading instruction as recommended by the National Reading Panel: phonemic awareness, phonics, fluency, vocabulary, and comprehension.

As Vadasy, Jenkins, Antil, Wayne, and O'Connor (1997) indicate, some of these strategies have been incorporated in one-to-one tutoring programs that are being used to prevent reading failure such as *Reading Recovery* (Clay, 1985) or *Success for All* (Slavin, Madden, Dolan, & Wasik, 1996). These approaches vary in their emphasis on decoding strategies and reading of connected text, skills essential in programs for struggling readers and those with extremely low reading ability in middle school (Bintz, 1997; Guthrie & Davis, 2003; National Institute of Child Health and Human Development, 2000a, b, c; Snow, Burns, & Griffin, 1998; Wasik & Slavin, 1993). Further, because of their high cost, programs like *Reading Recovery* and *Success for All* that are delivered by specially trained and certified teachers are available to only a small portion of the students needing supplemental literacy instruction.

The purpose of this evaluation was to document the effects of an intensive remedial intervention (i.e., hereafter called *Read Now*)

on reading performance of students at risk of continuing reading failure. *Read Now* was designed using principles grounded in best practices in preventing difficulties while providing effective literacy instruction.

Method

Teachers used *Read Now* to complement instruction from March to June of the school year. The students came from backgrounds rich in the cultural and ethnic diversity common in America's schools: Many spoke a language other than English at home, many came from backgrounds different than those of their teachers, and many were of a race or ethnic origin recognizable as a minority in our society. Treatment and control group pretest/posttest comparisons of reading achievement and attitudes were completed to evaluate the effects of the supplemental reading program on these diverse, at-risk learners; teacher attitudes after using the program were also evaluated.

Participants and Setting

Sixth, seventh, and eighth grade students ($n = 238$) were included in the study; each was experiencing below grade level reading performance. Treatment students were from seven different schools; control students were from three of the same schools as well as three different schools with similar overall demographics (see Table 1). For example, a treatment section was included from each of grades six through eight in Amp Middle School, but the number of struggling readers within the school was insufficient for identifying control students. Two different schools within the district (Blue Middle and Clear Elementary) provided lists of students experiencing reading problems, and students closely matched to treatment students in Amp Middle were selected to participate. Alternatively, there was a treatment section in each of the grades and a control section in grades seven and eight of Clear Elementary School; it did not have enough sixth graders for a control section, so administrators selected control group students from a school with similar demographics.

The selection procedure resulted in similar groups of students in the treatment and control groups. Approximately 85% of the students who participated initially were available for testing at the end of the study. Somewhat higher completion rates (85%) were evident for students using the *Read Now* program than for their comparison group peers (82%), but these differences were not statistically significant ($\chi^2 = 1.59, df = 1, p > 0.01$). Additionally, similar gender ($\chi^2 = 0.24, df = 1, p > 0.01$), race ($\chi^2 = 4.18, df = 1, p > 0.01$), free lunch ($\chi^2 = 0.43, df = 1, p > 0.01$), special education ($\chi^2 = 2.39, df = 1, p > 0.01$), and Title I ($\chi^2 = 1.59, df = 1, p > 0.01$) distributions were evident across treatment and control groups of students.

Procedure

Read Now is an intensive, structured reading intervention program that combines state-of-the-art information technology software; a teacher's guide featuring lessons, tips, and activities; and ongoing, interactive, one-on-one teacher support from a specially designated consultant. These components work together to help

Table 1

Participating schools comparison.

School	Location	Teachers Participating	Grades Participating	General Demographics	Technology
Amp Middle School	AL	4	6, 7, & 8	96% W	Good
Blue Middle School	AL	4	7 & 8	80.3% W, 19.7% B	Good
Clear Elementary School	AL	2	6	79.4% W, 18.7% B, 1.4% H	Good
Dow Elementary School	CA	3	6, 7, & 8	52% W, 34% H	Good
Ever Elementary School	CA	4	6	40.7% W, 4.6% B, 47.3% H, 7.2% Asian/Pacific Islander	Good
Form Elementary School	CA	5	7 & 8	52% W, 34% H	Good
Given Middle School	GA	3	6, 7, & 8	30% W, 69% B	Good
Haven Middle School	GA	13	6, 7, & 8	30% W, 69% B	Good
Inter Elementary School	NV	2	6	72% W, 10% H, 17% Other	Good
Jones Middle School	NV		6	69.3% W, 1.4% B, 20.6% H, 3.7% Asian, 5.0% American Indian	Good

teachers guide students to material appropriate to their reading abilities, provide the practice necessary to improving reading skills, and develop the five essential types of skills and strategies of effective reading instruction as recommended by the National Reading Panel: phonemic awareness, phonics, fluency, vocabulary, and comprehension. *Read Now* includes four key activities, all of which take place within a 90-minute daily block: Read To, Fluency Practice, Guided Independent Reading, and Small Group or Individual Lessons. During typical *Read Now* instructional sessions:

1. Teachers read books aloud to their students, lead discussions about the books, and engage students with strategies (e.g., Think-Alouds) that support what is being taught. Students listen to the books that are read aloud, participate in discussions about them, and demonstrate their understanding (i.e., listening comprehension) by completing Accelerated Reader quizzes. Teachers monitor the extent to which students are actively listening, thoughtfully-taking part in discussions, and performing at least 85% or better on quizzes.

2. During fluency practice, teachers monitor reading performance and improvements using *Fluent Reader*, specially-designed software that requires students to practice reading aloud, listen to modeled readings, and self-monitor their rates of reading. The software keeps track of the goals students meet with respect to reading rate and accuracy, their performance on comprehension quizzes, and students' judgments of their own reading performance.
3. During guided independent reading, students read books suited to their reading levels, discuss what they are reading with their teacher, and take vocabulary and comprehension quizzes using *Accelerated Vocabulary* and *Accelerated Reader* software. Teachers monitor their students' progress and evaluate individual improvements and group performance.
4. Teachers teach and reteach skills, such as phonemic awareness and comprehension, to small groups or individuals as needed based on outcomes of ongoing assessments.

At the beginning of the study, all students in both treatment (*Read Now*) and control classrooms completed the *STAR Reading* test as well as a brief attitude survey. After the pretests and initial surveys were completed, students in the treatment group participated in 90 minutes of *Read Now*, and control group students received their regularly scheduled remedial reading assistance. After 10 weeks, treatment and control students were re-administered the *STAR Reading* test and the attitude survey. At the end of the study, treatment teachers were asked to complete surveys about their experiences using *Read Now*.

Instrumentation

The *STAR Reading* computer-adaptive test and database is an achievement-level learning information system that allows teachers to accurately assess students' reading abilities in 10 minutes or less. The item bank includes 1,432 items graded into 54 difficulty levels. Test content is comprised of a section used to measure reading comprehension through vocabulary in context questions and authentic text passages to more fully measure reading comprehension. Four fundamental arguments support the use of the *STAR Reading* design for obtaining quick and reliable estimates of reading comprehension:

1. The vocabulary-in-context test items, while using a common format for assessing reading, require reading comprehension. Each test item is a complete, contextual sentence with a tightly controlled vocabulary level. The semantics and syntax of each context sentence are arranged to provide clues as to the correct cloze word; the student must actually interpret the meaning of (in other words, comprehend) the sentence in order to choose the correct answer because all of the answer choices "fit" the context sentence either semantically or syntactically. In effect, each sentence provides a mini-selection on which the student demonstrates the ability to interpret the correct meaning. This is, after all, what most reading theorists believe reading comprehension to be—the ability to draw meaning from text (cf. Chapter 4, *Report of the National Reading Panel*: National Institute of Child Health and Human Development, 2000c).

2. In the course of taking the vocabulary-in-context section of *STAR Reading* tests, students read and respond to a significant amount of text. When using the *STAR Reading* test, the student is asked to demonstrate comprehension of material that ranges over several grade levels. Students read, use context clues from, interpret the meaning of, and attempt to answer 20 cloze sentences across these levels, generally totaling more than 300 words. The student must select the correct choice from sets of words that are all at the same reading level and that at least partially fit the sentence context. Students must clearly demonstrate reading comprehension to correctly respond to these 20 questions.
3. A child's level of vocabulary development is a major—perhaps the major—factor in determining his or her ability to comprehend written material. Decades of reading research have consistently demonstrated that a student's level of vocabulary knowledge is the most important single element in determining the child's ability to read with comprehension (cf. Chapter 4, *Report of the National Reading Panel*: National Institute of Child Health and Human Development, 2000c). Tests of vocabulary knowledge typically correlate better than do any other components of reading with valid assessments of reading comprehension. In fact, vocabulary tests often relate more closely to sound measures of reading comprehension than various measures of comprehension do to each other. Knowledge of word meaning is simply a fundamental component of reading comprehension.
4. The student's performance on the vocabulary-in-context section is used to determine the initial difficulty level of the subsequent authentic text passage items. Although this section consists of just five items, the accurate entry level and the continuing adaptive selection process mean that all of the authentic text passage items are closely matched to the student's reading ability level. This results in unusually high measurement efficiency.

The *Student Attitude Survey* consisted of five questions addressing opinions about school, reading, and the use of computers. Response options ranged from 1 = No, not at all, to 5 = Yes, definitely. The *Teacher Attitude Survey* contained 15 items requesting opinions about the *Read Now* program (e.g., My students are reading more books because of *Read Now*. I am generally satisfied with *Read Now*. The Teacher's Guide lessons provide about the right amount of direction.). Responses were provided on 1 = Strongly Disagree, to 5 = Strongly Agree scale.

Design and Data Analysis

This study was a quasi-experiment using a nonequivalent control group design (Gall, Borg, & Gall, 1996). The main concern with research completed with this design is the absence of random assignment of participants to groups resulting in the possibility that differences on posttest are due to preexisting differences between the groups rather than to a treatment effect. This concern is alleviated when initial group differences on critical variables (e.g., demographics, pretest performance) are absent or controlled. In an attempt to minimize the problems associated with this design, each of the treatment schools identified a comparable group of children within their own school or a nearby school, and statistical similarities across selected demographic variables were documented; similarities in pre-

test reading and attitude scores are illustrated in the following section. All data were collected by trained professionals within natural classroom environments; compiled into databases by independent professionals; and analyzed by a third party to determine if changes occurred in the measurements used, if these changes over time were significant, and if the groups differed significantly.

Normal Curve Equivalent (NCE) scores and Independent Reading Level scores were compared using separate two-factor Analysis of Variance with Repeated Measures (ANOVR) procedures. Group (Treatment or Control) assigned to the students was the between subjects factor and Occasion (Pretest and Posttest) was the within subjects (repeated measures) factor. Practical significance was evaluated by calculating Posttest NCE and Instructional Reading Level effect sizes using the following formula: [Treatment Posttest Mean-Control Posttest Mean]/Control Posttest Standard Deviation. Pretest and Posttest NCE scores were converted to Percentile Ranks to provide an additional indicator of Treatment and Control group differences.

Results

Treatment and control group pretest and 12-week posttest Percentile Rank, NCE, and Instructional Reading Level performance scores are presented in Table 2. Percentile Rank averages were the same prior to students participating in the *Read Now* intervention; on average, scores for treatment group students were six percentile ranks higher after participating in the study while scores in the con-

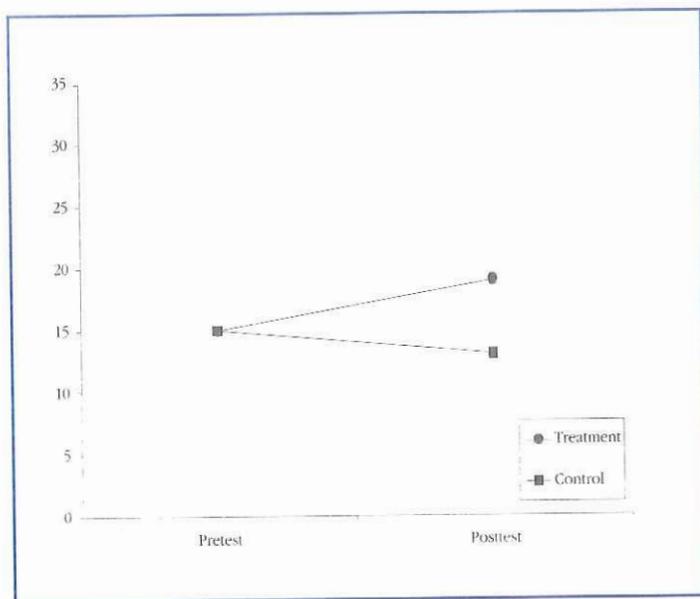
Table 2
Treatment and control group reading performance.

Reading Ability Indicator	Group		Pretest	Posttest	Posttest Effect Size ^a
Percentile Rank	Treatment (n = 122)	M	15	19	
		SD			
	Control (n = 116)	M	15	13	
		SD			
Normal Curve Equivalent	Treatment (n = 122)	M	28.06	31.29	0.40
		SD	12.65	13.76	
	Control (n = 116)	M	27.40	25.46	
		SD	14.42	14.75	
Instructional Reading Level	Treatment (n = 122)	M	4.54	4.99	0.35
		SD	1.25	1.48	
	Control (n = 116)	M	4.45	4.41	
		SD	1.67	1.65	

^aReflects posttest comparison for treatment and control group students.

control group decreased by two percentile ranks. Significant Group x Occasion effects were evident for Normal Curve Equivalent ($F_{1,236} = 11.43, p < 0.01$) and Instructional Reading Level ($F_{1,236} = 10.35, p < 0.01$) scores. Post hoc follow-up tests (Tukey's *LSD*) revealed similar simple effects across both measures of reading ability. Levels of pretest performance were not statistically different for treatment and control group students. No improvements were indicated from pretest to posttest for the control group students; however, significant gains were evident for treatment group students and posttest scores of treatment group students were significantly higher than posttest scores for control group students. Posttest effect sizes reflected moderate practical significance of the treatment group gains. A graphic illustration of the Percentile Rank improvement is presented in Figure 1; while average reading scores increased for treatment group students, they decreased for control group students. This same pattern was evident for Normal Curve Equivalent and Instructional Reading Level performance.

Figure 1. Evidence of Reading Skill (Percentile Rank) Improvements



Means and standard deviations for treatment and control group pretest and 12-week posttest attitudes are presented in Table 3. No significant differences were indicated in responses to four items: (1) I like reading; (2) I like school; (3) I think I can become a better reader; and, (4) I like using computers. For each of these items, treatment group means reflected improvements from pretest to posttest and these differences were consistently greater than the increases (or decreases) in attitudes for the control group; however, they were not statistically significant ($p > 0.01$). Significant Group x Occasion effects ($F_{1,475} = 13.63, p < 0.01$) were evident for responses to one item: *I know how to become a better reader*. Post hoc follow-up tests (Tukey's *LSD*) revealed the following simple effects: Pretest attitudes were higher for the control group than the treatment group students, but posttest attitudes for treatment group students improved to levels comparable to those for the pretest and

posttest control group students. Effect sizes reflected practical differences between the posttest attitudes of treatment and control group students for all items except, "I like school," where improvements in attitudes for the treatment group students were greater than for the control group students, but not statistically significant.

Table 3

Treatment and control group reading performance.

Item	Group		Pretest	Posttest	Posttest Effect Size ^a
I like reading. ^b	Treatment	M	3.56	3.91	0.29
		SD	1.28	1.13	
		(n = 127)	(n = 127)		
	Control	M	3.50	3.55	
SD		1.24	1.24		
	(n = 123)	(n = 112)			
I like school.	Treatment	M	3.54	3.88	0.09
		SD	1.23	1.12	
	Control	M	3.91	3.77	
		SD	1.17	1.22	
I know how to become a better reader.	Treatment	M	3.86	4.35	0.24
		SD	1.15	1.04	
	Control	M	4.32	4.09	
		SD	0.99	1.08	
I think I can become a better reader.	Treatment	M	4.37	4.65	0.38
		SD	1.02	0.69	
	Control	M	4.38	4.21	
		SD	0.91	1.10	
I like using computers.	Treatment	M	4.69	4.71	0.21
		SD	0.77	0.67	
	Control	M	4.64	4.49	
		SD	0.81	1.07	

^a Reflects posttest comparison for treatment and control group students.

^b Number (n) of treatment and control group pretest and posttest respondents was similar for each attitude item.

A summary of teachers' opinions after participating in the brief study are presented in Table 4. High levels of agreement (above 75%) were evident reflecting positive attitudes toward all but one

Table 4

Teacher attitude summary.

Item	Percent of Respondents					
	SD	D	D/A	A	SA	Mean
1. My students are reading more books because of the <i>Read Now</i> program.	0.0	0.0	0.0	35.7	64.3	4.64
2. My students like reading more now than they did at the beginning of the <i>Read Now</i> program.	0.0	0.0	21.4	42.9	35.7	4.14
3. <i>Read Now</i> has helped my students become better readers.	0.0	0.0	0.0	42.9	57.1	4.57
4. My students are more motivated to read because of the <i>Read Now</i> program.	0.0	7.1	7.1	42.9	42.9	4.21
5. My students like using <i>Fluent Reader</i> .	0.0	0.0	7.1	42.9	50.0	4.43
6. My students like taking <i>Accelerated Reader</i> quizzes.	0.0	0.0	0.0	64.3	35.7	4.36
7. My students like taking <i>Accelerated Vocabulary</i> quizzes.	0.0	0.0	7.1	57.1	35.7	4.29
8. My students like <i>Read Now</i> as a whole.	0.0	0.0	0.0	57.1	42.9	4.43
9. <i>Read Now</i> helps me teach reading better.	0.0	0.0	7.1	42.9	50.0	4.43
10. I am generally satisfied with <i>Triple I Reading</i> .	0.0	0.0	0.0	50.0	50.0	4.50
11. It is easy to manage all four activities of the program (reading book to students, <i>Fluent Reader</i> , instruction, independent reading with <i>AR</i> and <i>AV</i> quiz-taking).	7.1	0.0	0.0	57.1	35.7	4.14
12. The four activities flow together well in the order advised in the Teacher's Guide.	0.0	14.3	0.0	42.9	42.9	4.14
13. The Literacy Skills tests are helpful in modeling and discussing comprehension skills.	0.0	7.1	14.3	35.7	42.9	4.14
14. I was able to successfully use the lessons in the Teacher's Guide.	0.0	0.0	7.1	64.3	28.6	4.21
15. The Teacher's Guide lessons provide about the right amount of direction.	0.0	0.0	14.3	78.6	7.1	3.93
16. The Quick Assessments in the Teacher's Guide helped me decide what to teach.	0.0	0.0	35.7	35.7	28.6	3.93

aspect of the program and its use; there was less agreement (64 %) regarding the extent to which the *Quick Assessments* helped the teachers decide what to teach. In general, the average responses for all items on the survey indicated positive overall attitudes on the 5-point scale (1 = strongly disagree, 5 = strongly agree).

Discussion

Very poor reading skills have been blamed for 1 any of society's ills, including failure in international comparisons, chronic unemployment, dropping out of school, and juvenile delinquency (International Reading Association, 2001; Ivey & Broaddus, 2000; Kirk & Elkins, 1975; Lyon, 1985; Snow, Burns, & Griffin, 1998). A disturbing fact that plagues the American educational system is that many students from diverse backgrounds are at continuing risk for reading failure (Allington, 2002; Ivey & Broaddus, 2000; O'Shea & Valcante, 1986; Winzer & Mazurek, 1998). The problem represents a "nightmare" for many middle and secondary school teachers ex-

pected to teach demanding content to students with extremely low levels of reading ability (Bintz, 1997, p. 12). Improving reading performance has received constant interest in efforts to meet the needs of ethnically diverse learners as well as in the continuing commitment of many middle and high school teachers to see that all students learn basic skills (Baker, 2002; Bintz, 1997; Guthrie & Davis, 2003; McCray, 2001; Snow, Burns, & Griffin, 1998; Wasik & Slavin, 1993; Wood & Algozzine, 1995). The purpose of this research was to evaluate the effects of a structured program designed to improve the reading achievement of middle school students. Significant improvements in reading performance were evident as a result of this intervention. In terms of overall magnitude, the improvements were comparable to those reported for large-scale preventive early intervention programs designed to accelerate the progress of struggling readers who have failed to profit from reading instruction (cf. Center, Wheldall, Freeman, Outhred, & McNaught, 1995). It should be noted, however, that the gains in this study occurred after 12 weeks

of intervention, whereas the length of the intervention reviewed in Center et al. was longer, "usually a maximum of 20 weeks" (p. 240).

In a position paper entitled, "Supporting Young Adolescents' Literacy Learning," professionals in the International Reading Association and the National Middle School Association (NMSA) called upon teachers, education policymakers, and family and community members to place greater priority on reading instruction in middle-level schools so that students will become better readers, more prepared to use reading in their adult lives (International Reading Association, 2001). Toward this goal, they recommended that schools serving young adolescents should provide: (a) continuous reading instruction for all young adolescents, (b) reading instruction that is individually appropriate, (c) assessment that informs instruction, and (d) ample opportunities to read and discuss reading with others.

Attention to these details of effective literacy programs is also evident in the seminal work of the Committee on the Prevention of Reading Difficulties in Young Children (Snow, Burns, & Griffin, 1998). Additionally, they are the topic of continuing professional dialogue (cf. Allington, 2002; Coles, 2001; Cunningham, 2001; Ehri, et al., 2001; Garan, 2001; Guthrie & Davis, 2003; Ivey, 1999; Krashen, 2001; Strauss, 2003; Yatvin, 2002) and are evident as well in the program evaluated in this research. Achieving them will be no easy task.

Although students are expected to read purposefully in their content area classes by the time they reach the middle grades, teachers contend that many of these students "can't read, won't read, or will read but fail to comprehend most important information from text" (Bintz, 1997, p. 20). Paired with this "nightmare" is the concern that many middle school teachers do not expect to teach reading because they believe that it is not their responsibility and/or that they were not trained and are not prepared for the task (Bintz, 1997, p. 12). The situation is mired by the lack of variety in instructional materials provided or by their belief that they must use textbooks—unsuitable or uninteresting for many students—as the basis for instruction (Bintz, 1997; Ivey & Broaddus, 2000; McCray, Vaughn, & Neal, 2001). Pressure to improve scores on high-stakes tests also reduces the potential for making changes in reading programs. Programs like *Read Now* offer promising alternatives in the search for ways to meet the continuing need for interventions for struggling readers at risk of continuing failure in middle school.

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Do Novice Teachers Use Content Reading and Classroom Climate Strategies With At-Risk Students?

Arlene L. Barry and Donita Massengill

Abstract: Learning to read is fundamental to successful students who later translate these skills into earning power. Students who are at risk present a special challenge to the teacher of content reading. This article addresses two key questions: (1) Do novice teachers implement the content reading and positive climate strategies taught in preservice courses once they enter the field? (2) Do they create a climate friendly to the student who is at risk? Ten novice teachers, two from each of five content areas (English, science, social studies, mathematics, and foreign language) were the subjects. Environmental components and content reading strategies were examined through face-to-face interviews, a written checklist, and observations. Overall, novice teachers in this study worked at creating a positive classroom climate and used a variety of techniques to create an environment friendly to the student labeled "at risk."

Time in school translates to earning power, and students don't stay in school if they can't read the text. In a report issued by the U.S. Census Bureau, Bergman (2002), concluded that educational degrees produce a "Big Payoff." Bergman showed that over the course of a working life (ages 25-64), someone with a bachelor's degree could expect (on average) to earn over \$2 million. Entering the job market with a high school diploma, on the other hand, generally allowed the wage earner to garner only half those earnings. An illiterate adult, according to the Laubach group (H. J. Wilson, personal communication, June 20, 1998), earned 42% less than a high school graduate. As an educator, I have both a professional and a moral obligation to help students stay in school so they can earn a high school diploma and a decent income. [First person in this article refers to author Arlene L. Barry.] Creating an environment that will do this includes working on both academic and affective factors. As a teacher educator responsible for a content reading course, I must share with those who take my course (preservice English, science, social studies, math, and foreign language teachers) the strategies they need to help their students read text. Reading is, indeed, a challenge for many at-risk students (at risk meaning "children whose personal or family characteristics are associated with school difficulties" (Bowman, 1994, p. 219). In Sheridan's (2000) study, for example, the median instructional reading level for at-risk high school students was sixth grade. In the work of Matthews and Swan (1999), one of the criteria used to identify students at risk was a score below the 33rd National Percentile Rank in Reading Comprehension on the Iowa Test of Basic Skills. Additionally, "students who are delayed in reading also usually do not figure out on their own the strategies that are char-

acteristic of successful students" (Gaskins, 2000, p. 209).

Successful reading strategies are ones like summarizing, predicting, activating prior knowledge, questioning, clarifying, constructing images, and thinking aloud. According to Pressley (1998), these strategies "can promote reading instruction beginning in grade two and continuing into high school" (p. 216). Therefore, it is important for "regular" classroom teachers to incorporate content reading strategies in classes containing students found to be at risk. However, teaching is a complex activity and as Gaskins (2000) pointed out, "There is more to teaching at-risk and delayed readers than good reading instruction" (p.209). In addition to content reading, then, teachers need to attend to the classroom climate.

According to those who study the at-risk population, components of a positive climate may include individualized instruction; hands-on learning; group work; more thorough explanations; relationship building; flexibility; use of real-world, authentic tasks; and "fun activities" (Sheridan, 2000; Matthews & Swan, 1999; Zemelman, Daniels, & Hyde, 1998). Because of the nature of my content reading course, these are strategies and practices that I model and teach. I teach them, for one, because my state requires it. A 1996 Teacher Education Standard specified that students who finished our teacher preparation program would have "the ability to teach basic reading skills appropriate to the level [of the student] and [their] field of endorsement" (State Department of Education, 1996, p.33). At a more personal level, I want to prepare our preservice teachers to work effectively with students who are at risk because my own teenage son has a reading disability that puts him at risk.

Therefore, questions in this study are: (1) Do novice teachers implement the content reading

and positive climate strategies taught in preservice courses once they enter the field? (2) Do they create a climate friendly to the student who is at risk? Specifically, (a) Do preservice and first-year teachers who took Teaching Reading in the Content Area, implement any from a list of 24 content reading strategies (Appendix A) taught in the class? (While I realize that adolescent literacy extends beyond school-based work and is broader than strategies, strategy instruction is effective and may be critical for students who are at risk.) (b) Do preservice and first-year teachers incorporate environmental components identified in the literature as ones that keep at-risk students in school? The following aspects of classroom climate were examined: individualized instruction; flexibility (acceptance of responses, assignments, or procedures other than originally designated); collaboration; relevance (instruction tied to student interests or daily activities); thorough explanations (detail or definition included); hands-on learning (use of manipulatives or productions—debates, plays, or performances); “fun activities”; and relationship building (positive reinforcement, polite interactions, or interest in student). (c) Finally, because the kinds of interactions teachers have with their students affect the kinds of relationships they are able to build, the verbal interactions between teachers and students labeled at risk were counted and labeled. Categories included: academic (e.g., “That’s the muscle that holds the trachea. It goes in. Goes in the lungs, then splits into what?”); positive reinforcement (e.g., “Very good”); management (e.g., “Be quiet,” “Sit down, please,” “Put it away”); procedural (e.g., “Who was in your group?”).

Method

In this study, triangulation (Gall, Borg, & Gall, 1996) was achieved using multiple and different sources of data: questionnaire surveys, face-to-face interviews, and observations. Data collection was broken into parts so as not to overwhelm participants. Face-to-face interviews focused on beliefs and practices about working with at-risk students. Next, a 24-item written checklist was included in a survey questionnaire (Barry, 2002). It focused on participant’s use of reading strategies. Observations then allowed researchers to see if participants used the strategies they said they did. Observations also permitted examination of factors that create a positive school climate and a look at interactions between at-risk students and their teachers.

Data Collection

The first step in the data collection process was to send questionnaire surveys to students who had taken the course, Teaching Reading in the Content Area, which was taught by one of the authors. The 128 individuals who returned the surveys and said they used content reading strategies during student teaching were put into a pool (see Barry, 2002, for specifics of this study). Two participants from each of the five content areas (i.e., English, science, social studies, mathematics, and foreign language) represented in this course were randomly chosen. These 10 individuals were contacted and face-to-face interviews scheduled. Interviews were conducted to become better acquainted with the 10 teachers and to allow them to elaborate on general beliefs about teaching and specific beliefs about teaching at-risk students. An interview guide was developed to standardize interviews. The interviewer both took notes

and audiotaped. Then, based on placement in programs with at-risk students during internship and participant’s willingness to be observed, the pool was narrowed to five. One preservice teacher from each content area was to be observed three times, twice during the internship and once the following year during the first year of teaching. However, due to scheduling conflicts and personal issues, the preservice English teacher dropped out of the participant pool. While another preservice English teacher was added to the pool, the transition afforded only one observation for this participant. Individual observations ranged from about 45 to 90 minutes to coincide with class periods.

A “continuous recording” procedure was used to record observational information. With this approach, the observer recorded all the behavior of the target participants during each observation session. The observer wrote a protocol, or a brief narrative in chronological order, of everything that occurred during a given class period. A content analysis system was then constructed to analyze the protocols (Gall, Borg, & Gall, 1996). The analysis system constructed for these data focused on (a) number, type, and description of content reading strategies implemented; (b) number, type, and description of classroom climate practices identified as being effective for students who are at risk; and (c) number and type of interactions between teachers and at-risk students. So as not to make participants feel obligated to use these strategies, the author who taught the content reading course did not observe the teachers. Lessons were audiotaped and transcribed.

Once initial transcriptions were completed, tapes were listened to by a second person to insure accuracy. Agreement between two researchers on number and type of content strategies was 90%. Agreement on number and type of positive climate practices was 92%. Follow-up interviews were conducted after the second year of observations to see if there were changes in beliefs about teaching in general and working with at-risk students in particular. Member checking (Gall, Borg, & Gall, 1996) was used when researcher and participant interacted to ensure accuracy. Five cases are presented below. The discussion for each begins briefly with background information, pre-observation comments about working with the at risk, then a discussion of content reading and positive climate practices observed. Interactions are discussed later in conjunction with classroom climate.

Juan, History/Social Studies Teacher

Juan was certified to teach social studies. Three observations were conducted in his classrooms, two during his internship while he was teaching junior-level American History and one during his first year of teaching ninth-grade social studies. Juan implemented eight content reading strategies and six positive climate components (Appendices B and C). There were five students identified as being at risk present during Juan’s observations, four males and one female. Regarding working with at-risk students, Juan said, “You have to spend more time focusing on how this [schoolwork] applied to their lives. It seemed to me they weren’t as interested in some of the abstract facts that they probably won’t use again. . . . They don’t want to spend their time ‘wasted’ at school.” They want to know how things [content] can “apply to their real lives.” Juan’s attempt at applying schoolwork to students’ lives is evident in the following discussion about the term “Blitzkrieg.”

Juan: All right, Blitzkrieg. Someone first hour said it's a good name for a death metal band, which is, I kind of agree. What is its relationship to WWII?

Student: Germany used it.

Juan: (writing on board) The real translation is lightning war. Basically, what happened was Germany massed all their stuff on the border. All their planes, all their armor, all their troops, and rushed. . .

Student: And they rushed into Poland.

Juan: They brought in their planes, and tanks, and bombs, and troops. If you have heard the term blitz in football, you basically line up all your guys and go after the quarterback as fast as you can. That's blitzkrieg. Blitzkrieg was very successful. Germany was able to take Poland in about three weeks.

In addition to thorough discussions of vocabulary terms, Juan questioned regularly at various levels of difficulty (e.g., "Who were the Flappers?" "Why would jazz and brothels be linked?" "Why did Americans vote Republican in the 1920s?" "What was the ideal image of a woman in the 1920s?"). He incorporated team games like Jeopardy to keep the questioning lively. If particular responses were disputed, students were told to find the answer in the book, and he was flexible enough to accept responses that were reasonable but different from those given in the teacher's manual. Juan also used study guides, note taking, visuals (pictures and video clips), and "writing to learn" via research papers. He provided students feedback on their first drafts with "corrections." He explained, "I underlined what I thought was your thesis statement," and "gave suggestions." He asked students if they needed clarification and used think-alouds. For example when a student asked about the meaning of the word "untenably," Juan said, "If you use the footnote thing, it says 'cannot be defended,' but after reading the sentence through a couple of times, I wonder if they meant 'can't be defined.' I'm not familiar with that word. I should look it up." He looked up the word while the students were working and wrote the definition on the chalkboard. Then he said, "I did look it up in the dictionary: 'untenably, cannot be held, defended or maintained.' That's a new word for me so I had to look that one up."

Juan used primary source materials to personalize the lesson and make a connection with the past. The material he incorporated was a diary from a mother whose son was fighting for the Germans during World War II. This approach brought in the critical literacy perspective by allowing the students to see a situation from both sides. Finally, at all times, Juan modeled what he believed to be polite, respectful behavior. For example, during the Jeopardy game he began, "Since we are courteous folk, ladies, you will get to go first." He reminded students of missing assignments saying, "Please bring it for me tomorrow." After working with at-risk students, Juan reflected: I need to "make sure they know I am interested in them and want to see them succeed," "get them involved in the class," and "alter my class management style" when needed.

Jasmine, Mathematics Teacher

Jasmine was certified to teach mathematics. Three observations were conducted in her classrooms, two during her internship. One of the internship observations was done while she was teaching

sophomore-junior Algebra II and the other while teaching junior-senior Pre-Calculus. The third observation, conducted during Jasmine's first year of teaching was done during an Algebra II class. Jasmine implemented five content reading strategies and two positive climate components (Appendices B and C). Although Jasmine stated that at-risk students were present in her classes, school policy did not allow her to point them out for the researcher.

In terms of teaching at-risk students, Jasmine said, you have to let "them know they are cared for. . . [it will be] more emotionally strenuous, I would think, because their needs are so much more fundamental than those who are not at risk. . . you have to start. . . back at the fundamentals." Jasmine did go back to the "fundamentals" and regularly used "think-alouds," constantly talking through each step of the mathematics process. Also, she took responsibility for student learning and blamed herself rather than the student if she didn't think a concept was clear. For example, she said, "I just checked your assignments you just handed in. I don't know if you were doing it right. So do you want me to go over one with you? I don't know if I didn't explain it right or what." Then she proceeded to go through the process step by step, questioning the student during each step of the process.

Jasmine: What is the function of that one?

Student response: *inaudible*

Jasmine: Okay, read it to me.

Student response: *inaudible*

Jasmine: Okay, so you look at the signs. This is what?

Student response: *inaudible*

Jasmine: So from positive to negative is there a change?

Jasmine instructed students to "show all your work" so she could see what they understood and also "give partial credit." Regularly she asked if there were "any questions" and assured students, "If you don't understand, we'll walk through the method." She used a visual in the form of a poster showing the buttons and functions of the graphing calculator and again demonstrated its use, step by step.

Jasmine tried to clarify mathematical vocabulary as she worked through the processes. "So this is called the difference of two squares." She proceeded to explain and then said, "We'll do a couple of examples." As she demonstrated, she asked, "Difference means what?" Students also engaged in note taking, and this strategy was especially critical because they were allowed to use their notes on quizzes. She used a mnemonic aid, singing a formula to the tune of a nursery rhyme so her students would remember it.

As with Juan, Jasmine's interactions with her students were polite: "Please make sure you understand that." Also like Juan, Jasmine reinforced correct responses, e.g., "Good job, Jacob." Post-observation comments about working with at-risk students focused on her realization that she needed to help them engage in more "active learning" and "more real life applications."

Julie, Foreign Language/Spanish Teacher

Julie was certified to teach a foreign language, Spanish. Three observations were conducted in her classrooms. The two done during her internship took place in a Spanish I class (10th grade and a few freshmen). The third observation, during Julie's first year of teaching, was done during a Spanish II class, containing 10th-12th

graders. Instruction in all classes was largely in Spanish. A doctoral student, fluent in Spanish, translated. Julie implemented five content reading strategies and six positive climate components (Appendices B and C). There were three students identified as being at risk present during the observations, all being male. Julie's purpose and passion for teaching were evident in the initial interview. In working with the at-risk population, she made it clear that she could relate because she herself had been at risk and had dropped out of school. It was a former teacher who "talked me into coming back." It is because of this teacher's actions, she believes, that "I am the way I am." She stated emphatically, "If you're not there to teach those kids [who struggle], you shouldn't be in there, and that's how I feel." Julie stated that at-risk students need "guidance," "patience," "someone who will listen to them and make them feel important." She believes she needs to provide students with choices and learning activities that are "real life." She said that she is in the teaching profession "for the long haul. I mean I'm going to be there for my students." She indicated that this attitude had caused some disagreements with her husband who didn't understand her level of devotion.

Since this was a beginning foreign language class, there was much attention to vocabulary and grammar. Julie provided substantial wait time for responses and really worked through the language process to make sure that students understood. For example,

Julie: Conjugate this one for us. . . Okay, is he right?

Students: Yes.

Julie: Okay, Castor, why did you put an "a" here and an "a" here?

Castor: Because that is the ending?

Julie: But why is that the ending?

Castor: *No response*

Julie: It is an -ar verb. Okay, you put "a's" there if you have an -er or -ir verb, what are you going to put here and here?

Students: The opposite of the -ar endings.

Julie: Okay, good job on this one. What does "dar" mean?

Julie used a variety of strategies to make the practice as interesting as possible. She used a multisensory approach to learning the vocabulary, i.e., see the word, say the word, and write the word. She tried morphemic analysis to explain occupations. For example, after asking students to give their parents' occupations in Spanish (application to real life), she explained the Spanish word "milkman."

Julie: We know how to do this. . . Mr. T is a . . . salesman of milk. And we know how to do this because we learned the word for salesperson.

Student: Vendedor.

Julie: Okay, so come up here and write it, yes...V-E-N-D-E-D-O-R de...Then you all know the word for milk?

Students: Yes, leche.

She had the students collaborate in pairs to practice vocabulary. They quizzed each other using flashcards. Julie tried to make the Spanish vocabulary relevant by having students report on their own families including descriptions of themselves. She continued the connections with her discussions about music. She talked about different types of music (merengue, tango, salsa) and various sing-

ers popular in Spanish-speaking countries. The students appeared very interested. One of them asked, "Isn't rap kind of Spanish too?" Julie was also able to interest students in worksheets. For example, one student said, "I thought we were going to do some fun worksheets." Julie responded, "We are going to do fun worksheets." The student responded, "Yes, COOL." Other fun activities were games. One game was a kind of relay in which the first team to write the correct future tense of that verb on the chalkboard got a point. A Jeopardy game using Spanish vocabulary and grammar was planned for the following week. Students continued applying Spanish vocabulary in the dialogues they wrote.

Choral reading was used to help students gain confidence speaking. Julie questioned frequently, particularly at the literal and application levels.

Julie was flexible. In referring to the assignment he did, one of the at-risk students said, "I copied down the wrong three." Julie responded, "That is okay, as long as you did three exercises, I will accept it." The flexibility continued by allowing students choice in their homework assignments ("choose three of the five pictures") and activities.

Quizzes were used diagnostically. They were handed back, and Julie went over incorrect answers. She had students make corrections orally and write them in on their papers. Reasons for the answers were discussed. She then followed up with oral dictation over items students got wrong.

Julie treated her students with respect, regularly using "please" and "thank you" when she spoke to them. Additionally, as with the two previous teachers, she incorporated positive reinforcement regularly: "Aries is a good artist, right?" and "Ahmed just asked a good question." Also, as with the other preservice teachers, Julie was not afraid to admit mistakes. Her students pointed out an error she had made on the board and she responded, "Oh, thanks you guys. That is why I need you around."

During a post-observation interview, Julie's view of at-risk students continued to be realistic. "I believe at-risk students take more time," she said. She then provided examples of these time-consuming tasks. "Additionally," Julie noted, "I feel it is important to make no prejudgments on what other teachers may think of a particular student. . . . It is important to treat students individually."

Simoa, Biology Teacher

Simoa was certified to teach biology. Three observations were conducted in her classrooms, two during her internship while she was teaching freshman Biology I, and one while she taught sophomore biology. Simoa implemented nine content reading strategies and seven positive climate components. She had the most difficult class and therefore used and needed to use the greatest number of strategies to keep students engaged (Appendices B and C). There were 16 students identified as being at risk present during the observations, 12 male and four female. Regarding working with at-risk students, Simoa said her focus would need to be on factors other than academics, on things like "helping them get through the day." Simoa expressed firm ideas about teaching in her pre-observation interview, and these ideas came through in her own classroom instruction. She stated in her interview that she wanted to use the Internet with lecture and note taking so students could "see"

what she was saying. Simoa had fond memories of her own science instruction, which consisted of lots of activities.

This hands-on approach to science was evident in her classes. For example, the assignment in Simoa's class during the first observation was to "trace the flow of oxygen through the respiratory system of the fetal pig." Students were actually dissecting fetal pigs in this lab. They were to label the flow in a packet they had been given, e.g., trachea, bronchi, and bronchioles. Her willingness to accommodate was evident when she allowed one student to draw the flow of oxygen "because he couldn't write very well." Students engaged in collaborative learning as they worked in pairs. They were involved in the writing to learn process as they wrote the functions of the various body parts. A multisensory approach to learning was used as students wrote, drew, and orally defined parts and functions of the fetal pig. Simoa walked through the process with students who struggled, demonstrating and constantly questioning to keep them engaged. Since there was going to be a quiz over this material, one of the males labeled at risk said he was "coming in during seminar to study" for the quiz. Simoa responded, "That's fine." Unfortunately, however, Cari, one of the females identified as being at risk, sat throughout the entire lesson, completely unrecognized and uninvolved.

Simoa used mnemonic aids and visualization to help students remember terms and processes. "Always remember the kidney because they look like kidney beans."

She used direct definition as well: "Make sure you get the pericardium off. That's the tissue surrounding the heart." She provided analogies and tactile descriptions: "Here is the trachea right here. This hard structure. Feel, it's kind of ridged. You know, like those old washboards where people did their clothes. That's what it feels like."

Simoa tried to make learning relevant for the students by connecting what they were learning in class to a popular television program, "ER." "This is the thoracic cavity," she pointed out. "When you watch ER and they say thoracic cavity, gunshot wound in the thoracic cavity," [this is what they mean]. Later when students talked about yeasts, Simoa told them that they would get to make yeast bread so they could see the effects of yeast. This bread would then be turned into pizza.

Students engaged in collaborative learning by working in pairs. Simoa constantly moved among pairs, helping, labeling, and answering questions. At the end of the class period, she brought the whole group together to summarize and review what was learned. Using a fetal pig, she traced the flow of oxygen through the respiratory system again herself.

During the second observation, additional content reading strategies were noted. (Since these science periods were the longest of the content classes observed, there is more information to report.) Students took a quiz over information they themselves summarized using a concept map they had created. Once students saw that active involvement in their learning paid off (i.e., if they constructed a clear concept map, they did well on their test), they got busy and perfected their concept maps. During both class periods, Simoa constantly questioned students at a range of levels, e.g., literal, application, inferential.

Students were given some choice. For example, they were told that they could construct either a concept map or an outline and

that they should essentially use the text structure to help them because this section was "very well laid out." Students took notes and Simoa tried to make learning fun by using such activities as an "algae coloring book."

Like the others in this study, Simoa admitted her shortcomings. As she reached for a diagram, Simoa said, "I've never dissected a pig." In keeping with what she said she wanted to do in her interview, Simoa used Web sites to help students review and prepare for a test. Simoa explained that she used the Internet because the book had a limited number of pictures, and the pictures "of some of the protists" on the Internet were much larger. Like the other preservice teachers, Simoa also reinforced correct responses. Additionally, she was polite to students, e.g., "Thank you ladies for picking up."

Post-observation interviews were more negative with Simoa than with others. However, Simoa had larger numbers of at-risk students in her classes (a total of 16, 12 male and four female) and longer class periods than other teachers observed. That is probably why she ended up with more management interactions with her at-risk students than others (25 management interactions). "At-risk students don't pay attention as well, don't stay on task as well, don't work as well, don't try as hard," Simoa commented. The effort is just not there. . . . It's like pulling teeth to get them to work." Her experiences were challenging.

Bob, English Teacher

Bob was certified as an English teacher. Only one observation of Bob was completed due to a change in participants. He was observed during student teaching, in an eighth-grade English class. Bob implemented five content reading strategies and six positive climate components. There were four students identified as being at risk present during Bob's observations, three male and one female. Bob made it clear during his pre-observation interview that he wanted to work with at-risk teens. He commented to one of the researchers that he dressed, i.e., clothes and hair, to "fit in" with the at-risk population. He said that he spends "a lot of time on relationships." His priority, he explained, was to "establish a climate" and good relationships before focusing on content. He believes that "every kid can learn" and "If something's not working, instead of giving up. . . reflect on what you're doing and find a different button to push." Being a basketball player himself, he ascribed to the "coaching and teaching philosophy" and recommended Mike Krzyzewski's book, *Leading with the Heart*.

Bob's beliefs about a positive climate came through in his instruction. He began the class having students volunteer to read poems they had written. Praise and supportive comments followed each student's reading. "Two handclaps for Chris!" "Nice rhyming there." "Hanna has some pretty artwork with hers, and I'm sure an excellent poem as well." After everyone who chose to share poems they had written had finished, Bob told the class they were moving on to another poem found in their texts. He provided a preview (overview with questions that tapped into student's prior knowledge) of the new poem. Then, to help students relate the theme of the poem to their lives, he brought in a current CD with a similar theme. Students were directed to respond to questions about the theme in their journals. The writing period was brief, and students discussed the questions orally. Questions asked were at the applica-

tion and interpretation level. Bob also used think-alouds to share his interpretation of the song and to make personal connections. He used a think-aloud again to show how he figured out unknown words in the textbook poem:

Bob: First of all, are there any words in there that you don't understand?

Rod: Linden.

Bob: Linden, where was that? . . . Linden . . . I'll look it up. "Linden, any of a genus of trees, or any type of tree, that has large, heart-shaped leaves that has yellow flowers rich in nectar and large roots with white wood." So I guess linden could be reflections of these windows, is how I understand it.

He showed the students how to use footnotes and context clues for other unknown words and walked them through the process of using the dictionary when the part of speech of the unknown word was not in the dictionary (*iridescence/iridescent*).

When the vocabulary was clarified, students took turns reading the poem out loud, worked on interpreting the poem, and then collaborated in small groups, using "think-pair-share" to answer questions about the poem. Students were allowed to sit in desks or on the floor to do their work. He kept the atmosphere upbeat, telling the class, "Interpreting poetry is always fun. There aren't right or wrong answers, necessarily, so give it your best shot." However, he expected answers to be thoughtful and well supported. "Guys," he explained, "if you can have specific lines from the poem to support what you are talking about, it will make it better. Find a line or two. Try your best. . . That sounds great." Again, Bob took time to have students share responses to the questions they completed. Praise was used for participation and quality responses (e.g., "Alright guys, thank you, good job," "Okay, let's give them a Tiger Woods celebration"). Reading workshop was the plan for the next day. As with the other teachers, Bob showed respect for his students through polite interactions. A post-observation interview was not completed yet, since Bob was only observed once.

Summary

One of the criticisms of teacher preparation programs is that little of the knowledge acquired in university courses is directly applicable to classrooms (Kagan, 1992). As the parent of an adolescent with reading difficulties, I know too well the skills and dispositions a teacher needs to support reading and create a climate conducive to learning. Since my own university course focuses on teaching reading in the content area and several others focus on classroom climate, I wanted to know if strategies taught in university courses were implemented by novice teachers. Based on observations conducted on five educators during their preservice and first year of teaching, the answer is, yes. Some content reading strategies were used across most content areas (vocabulary development, questioning, think-alouds, visuals, and writing to learn) and others (study guides, note taking, graphic organizers/concept maps, summaries, previews, and analogy) were used less consistently. While different levels of use and different approaches to vocabulary development were implemented, all teachers assisted students with this basic level of comprehension. Three educators used think-alouds to show students how they themselves

use dictionaries, text aids, and morphemic analysis when they get stuck on words. Others used think-alouds to model problem solving or their use of memory aids like songs and analogies. Another content reading strategy used by all five educators was questioning. Teachers questioned regularly at a variety of levels: literal, applicative, interpretive, and inferential. Team games such as Jeopardy or races to conjugate Spanish verbs were used to make the questioning process more enjoyable. Such "emphasis on collaboration," according to Payne, 1998, "is a highly effective instructional method for many at-risk students, especially students from poverty." Collaboration was evident in the classrooms of four of the five teachers. In addition to team games, students worked in pairs to dissect fetal pigs and used "think-pair-share" to decipher a poem in English. A final reading strategy implemented widely by teachers in this study was writing to learn. Teachers had students write dialogues, summaries, research papers, reactions, and explanations to help them learn the content being taught. While implementing content strategies, teachers tried to incorporate them in a relevant context. These novice teachers appeared aware that "students learn more when they engage in more real-world, authentic tasks" (Sheridan, 2000; Zemelman, Daniels, & Hyde, 1998). Teachers connected content concepts to football, TV shows, popular music, students themselves, and their families.

Overall, the novice teachers observed in this study worked at creating a positive classroom climate. Although none of them provided individualized instruction, most did use a variety of other techniques to create an environment friendly to the student labeled "at risk." In addition to collaboration and the use of relevant and fun activities already noted, four out of five teachers exhibited flexibility, allowing for alternate assignments and responses. A final important element of classroom climate is the relationship established between teacher and student. In this study, all five teachers showed respect for their students in their polite interactions. Teachers used "please" and "thank you"; asked, rather than ordered; and modeled considerate behavior. All teachers also regularly issued praise or "assigned competence," an aspect of teacher interaction that Bracey (1995) noted as important in increasing student participation and therefore learning outcomes. Teachers in this study reinforced correct responses, effort, good behavior, and helpfulness. The at-risk students in Lehr & Lange's (2000) study said one way teachers can connect with students is by giving compliments. Showing respect and complimenting were ways these teachers built relationships with their students.

Another factor that likely aided relationship building was the fact that teachers made it clear they were human. They admitted they made mistakes, said they did not have all of the answers, and sometimes needed to reteach something because "I didn't explain it right." It is certainly easier to build a relationship with someone who is human than one who is flawless. This notion of relationship building is, according to Matthews and Swan (1999) one of the "most commonly identified effective program components" (p.30). Unlike the teachers that at-risk students complained about in the Matthews and Swan study, teachers observed here generally did not just "give directions and leave you." Teachers tended to interact regularly with their students and the material they taught. All five generally provided thorough explanations of content. Perhaps they didn't always provide the best explanation, but they made an attempt. They provided de-

tails and definitions, questioned, demonstrated, and walked through procedures, be it the respiratory process of the fetal pig or the procedure for finding the difference of two squares.

In terms of reading strategies and classroom climate, teachers in this study appear to be on the right track. Also, somewhat surprisingly, there was a connection between what teachers said they *should* do in pre-observation interviews and what they actually did. Beliefs about what needed to change for those children at risk expressed in post-observation interviews varied by individual, but included sound practices. These teachers need to build confidence and continue "standardiz[ing] routines that integrate management and instruction" (Kagan, 1992, p. 162), but they are implementing strategies and practices taught. Certainly, this is the result of a combination of factors, one of which is probably the length of our teacher preparation program. It includes six weeks of student teaching and then a 14-week internship with graduate courses, adding a fifth year to the certification program. One of Kagan's conclusions in her review of the research on preservice teacher education is that "extended practica" are needed. Additionally, since many faculty in our teacher preparation program have won teaching awards, our preservice teachers have strong models. Aspects of a positive classroom climate are modeled and practiced in many university courses.

A concern and unintended discovery yielded by this study relates to female students. In this study there were 22 males and six females identified as being at risk (Appendix D). An alarming pattern emerged when student-teacher interactions were examined. In each of the four classrooms where at-risk students were identified, the least number of total interactions took place with females. In the science class where there were eight males and four females at risk, two of the four females had no interactions with the teacher during observations. The student with the greatest number of interactions, a male, had 44: 10 management, 13 procedural, 17 academic and four positive reinforcement. Although the greatest number of management interactions was consistently with the males, there were no management interactions in the English class and still the female in the group had the least number of student-teacher interactions. The only at-risk student mentioned in field notes as being "completely unrecognized and ignored" was a female. While others (Martin & Newcomer, 1999; She, 1997; Johnson, 1996) have found similar patterns (i.e., teachers giving more attention to males, asking males more questions, giving males more opportunities for participation), it is time for such inequities to stop. Clearly, this is an area in which our preservice education needs to focus next.

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Appendix A

Current Content Area _____

Current Grade Level _____ Number of Years You've Taught _____

Strategy/Technique	I used this strategy (please check, if yes)	Result. Please rate 1,2,3 1 = <i>Not effective</i> 2 = <i>Effective</i> 3 = <i>Very Effective</i>	I'd recommend this strategy (please check, if yes)	Remarks
1. Analogy				
2. Anticipation Guide				
3. Discussion Web				
4. Directed Reading Thinking Activity (DRTA)				
5. Gloss				
6. Graphic Organizer				
7. Guided Imagery				
8. Intra-Act				
9. K-W-L				
10. Mapping				
11. Note Taking				
12. Preview				
13. Previewing				
14. Problematic Situation				
15. Question-Answer Relationships (QAR's)				
16. Reciprocal Teaching				
17. Study Guide				
18. Story Impression				
19. Summary Writing				
20. Think Alouds				
21. Visual Aids (prints, photos, charts, graphs, slides, movies, etc.)				
22. Vocabulary Activities (Wordsorts, puzzles, cloze, context clues, morphemic analysis, etc.)				
23. Writing to learn (journals, exploratory writing, research projects, etc.)				
24. Your own questions				

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Appendix B

Content Reading Strategies Used by Novice Teachers

Strategy					
1. Analogy					
2. Anticipation Guide					
3. Discussion Web					
4. Directed Reading Thinking Activity (DRTA)					
5. Gloss					
6. Graphic Organizer					
7. Guided Imagery					
8. Intra-Act					
9. K-W-L					
10. Mapping			X		
11. Note Taking		X	X		X
12. Preview					
13. Previewing					
14. Problematic Situation					
15. Question-Answer Relationships (QAR's)					
16. Reciprocal Teaching					
17. Study Guide	X		X	X	
18. Story Impression					
19. Summary Writing					
20. Think Alouds	X	X			X
21. Visual Aids	X	X	X	X	
22. Vocabulary	X	X	X	X	X
23. Writing to Learn	X		X	X	X
24. Questions	X	X	X	X	X
	Juan	Jasmine	Julie	Simoa	Bob

Appendix C

Classroom Climate Elements Implemented by Novice Teachers

Climate Elements					
1. Individualized Instruction					
2. Hands-on Learning				X	
3. Thorough Explanations	X	X	X	X	X
4. Real-World Tasks	X		X	X	X
5. Flexible	X		X	X	X
6. Collaborative	X		X	X	X
7. Fun	X		X	X	X
8. Relationship Developed	X	X	X	X	X
	Juan	Jasmine	Julie	Simoa	Bob

Appendix D

Number and Type of Interactions Between Novice Teachers and Students At Risk

Types of Interactions						
1. Management e.g., "Sit down."	11 M 0 F	<div style="border: 1px solid black; padding: 5px; display: inline-block; writing-mode: vertical-rl; transform: rotate(180deg);"> Identification of at-risk not allowed. </div>	2 M 0 F	31 M 2 F	0 M 0 F	44 M 2 F
2. Procedural e.g., "Who is in your group?"	5 M 1 F		4 M 0 F	42 M 7 F	5 M 0 F	56 M 8 F
3. Academic (instructional)	9 M 3 F		13 M 0 F	48 M 4 F	13 M 2 F	83 M 9 F
4. Positive Reinforcement e.g. "Good job."	2 M 1 F		4 M 0 F	10 M 0 F	2 M 1 F	18 M 2 F
	Juan 4 Males in classes 1 Female		Jasmine	Julie 3-Males in classes 0 Females	Simoa 11 males in classes 4 Females	Bob 3 Males in class 1 Female

M = Male
F = Female

Students At Risk for School Dropout: Are There Gender Differences Among Personal, Family, and School Factors?

Anne Lessard, Laurier Fortin, Jacques Joly, Égide Royer, and Catherine Blaya

Abstract: *The aims of this study were to determine, using a sample of 3,359 high school students, whether gender is a predictor of the dropout risk and whether the interaction between gender and personal, family, and school-related factors contributed to increasing the dropout risk. Results indicate that boys are at higher odds of dropping out than girls. Moreover, all factors evaluated and their interaction with gender significantly increased the dropout risk. Logistic regressions indicate the odds that boys will drop out are higher on family functioning and negative attitudes towards teachers, the two strongest predictors of dropout risk, while the odds that girls will dropout increased as a function of behavior problems, academic achievement, and commitment to school.*

In 2000, nearly one out of five Quebec high school students (18%) dropped out of school before obtaining a high school diploma or its equivalent (Ministry of Education of Québec, 2004). This national cohort rate reflects the proportion of the school-age population not enrolled in school and having not yet obtained a high school diploma by the age of 20. According to the statistics compiled by the Ministry of Education of Quebec (MEQ), nearly twice as many boys (23.6%) than girls (13%) opted to leave school prematurely. Bowlby and McMullen (2002) reported that the situation in Quebec is comparable to that of other Canadian provinces: In 1999, more boys (15%) than girls (9%) dropped out of school prior to graduation and had not yet obtained their diploma at age 20. Using the data from the National Center for Educational Statistics detailing the results from the 1998 population survey in the United States of America, Kaufman, Kwon, and Klein (2000) evaluated that 5% more boys than girls dropped out of school.

The high dropout rate represents an indicator of a complex social problem as the consequences related to dropping out of school prior to graduation are becoming increasingly severe over the years. On one level, dropping out of school may affect the individual psychologically, leading to social misadaptation and delinquency (James & Lawlor, 2001; Devlin, 1997). On another level, having not yet acquired the competencies needed to integrate into the workforce, the dropout may have difficulty finding a job and remaining gainfully employed. The MEQ (2002) reported that since 1990 there has been a significant decrease in the number of jobs available to individuals who do not possess a high school diploma; therefore, it was more difficult for a high school dropout in 2002 to find work than it was for someone who

dropped out in 1990. Moreover, Statistique Canada (2003) reported an unemployment rate twice as high for dropouts compared with the national average (7%). More specifically, in January 2003, Statistique Canada estimated that 14.3% of boys and 13.3% of girls who had not acquired a high school diploma were unemployed.

When looking at Canadian and American national statistics pertaining to the number of students who have dropped out of high school, boys represent a greater percentage than girls (Bowlby & McMullen, 2002; Kaufman et al., 2000). Are there gender differences in the risk of dropping out?

Results of studies evaluating students who are still in school and who might be at risk of dropping out showed a different situation. In Canada, Gélinas et al. (2000) reported that there was no significant difference in the dropout risk level between the 206 boys and 177 girls evaluated during their first year of high school (aged between 11 and 14). Gender was not a predictive variable associated with dropping out of high school. A similar conclusion was reached by Ripple and Luthar (2000) who led a three-year study with 134 students ranging in age between 13 and 18 years. Through univariate associations, these researchers did find that boys demonstrated more behavior problems in the classroom setting and that they were more likely to leave school prematurely than girls; however, through multivariate analyses, gender no longer demonstrated its predictive power. Everett (1997) conducted a study on the social and academic factors linked with perseverance which yielded results supporting the conclusion that gender did not influence the dropout risk level. Finally, Janosz, LeBlanc, Boulerice, and Tremblay (1997) evaluated two independent cohorts composed of French-Canadian students in 1974 (438

boys and 353 girls) and in 1985 (367 boys and 424 girls) and found, through logistic regressions, that gender did not affect the risk level.

Two studies assessing children in primary school led researchers to conclude that boys were at greater risk of dropping out of school than girls. This finding was supported by Lipsey and Derzon (1998) who conducted a meta-analysis pertaining to risk factors linked to school dropout for both primary and secondary school populations. According to these authors, being a boy was only predictive of high school dropout when evaluated at the primary school level. Results from a study evaluating 790 students over a period of 14 years starting in first grade in Baltimore schools allowed Alexander, Entwisle, and Horsey (1997) to reach the same conclusion.

Analyzing the data from the longitudinal study, *High School and Beyond* (HSB), McNeal (1997) reached the conclusion that gender did have significant predictive power for the dropout status of students. According to McNeal, boys were less likely than girls to drop out of high school after having statistically controlled for academic achievement. Goldschmidt and Wang (1999) analyzed the data from the National Educational Longitudinal Study (NELS). According to the results obtained from hierarchical logistic regression analyses, girls were at higher risk for dropping out of high school than boys. Both of these studies were conducted using large nationally representative high school samples (25,000 students for the NELS; 17,424 students for the HSB). Results from a prospective longitudinal study conducted by Battin-Pearson et al. (2000), aimed at comparing and contrasting five theories of early high school dropout, outlined gender differences in the dropout process which tend to support the results obtained by McNeal (1997). The researchers evaluated 808 students and found that boys demonstrated a significantly lower academic achievement than girls, which was in turn associated with a higher risk of dropping out of school prior to 10th grade. However, when academic achievement was controlled, girls were at higher risk of dropping out of school than boys.

Based on the statistics published by the MEQ (2004) and Statistique Canada (2003), it appears that more boys than girls drop out of high schools in Quebec and across Canada. However, when the risk was evaluated in high school, girls seemed to be equally, if not more, at risk of dropping out than boys. In order to prevent students from dropping out of school, it may be relevant to evaluate the factors which may contribute to altering the risk level by gender. The dependent variable evaluated in the studies reviewed thus far was the risk of dropping out, a variable which often cumulates and confounds all types of risk factors. It thus seems pertinent to further scrutinize the factors which may contribute to the global risk score, including personal, family, and school-related risk factors.

Among the personal factors most often associated with high school dropout are internalized (depression and anxiety) and externalized (aggression and delinquency) behavior problems. Results from a study conducted by Fortin, Royer, Potvin, and Marcotte (2001) demonstrated that compared with non at-risk students, at-risk students showed less adequate interactions with others and more sadness, helplessness, self-depreciation, and social isolation. Further analyses by Fortin, Royer, Potvin, Marcotte, and Yergeau (in press) on the same sample indicated that both boys and girls who were at risk rated significantly higher on the depression scale and demon-

strated more antisocial behavior and delinquency than non at-risk students. Results obtained by Marcotte, Fortin, Royer, Potvin, and Leclerc (2001) showed that girls obtained a higher score than boys on internalized behavior problems while boys scored higher on externalized behavior problems. Supporting the findings of Marcotte et al. (2001), James and Lawlor (2001) found that internalized behavior problems were more prevalent in girls. However, there was no significant difference between boys' and girls' scores on the externalized behavior scale as a whole, although girls demonstrated less delinquency than did boys. Janosz, LeBlanc, Boulerice, and Tremblay (2000) found that delinquency was a better predictor for boys than girls.

Results obtained from longitudinal studies where students were first evaluated in primary school seemed to indicate that behavior problems in primary school were strongly related to dropping out of high school. Indeed, Ensminger and Slusarcick (1992) found that pupils who showed more behavior problems, more specifically aggression, were at higher risk of dropping out than were other pupils, and girls were less likely to drop out of school than boys because they were less aggressive and obtained higher achievement test scores than boys. Moreover, as a result of their 19-year study of a cohort of 143 at-risk students, Jimerson, Egeland, Sroufe, and Carlson (2000) demonstrated that among several variables found to be significantly associated with prematurely dropping out of high school, the severity of the pupils' behavior problems in sixth grade was the strongest predictor of the students' dropout status. Although these researchers also determined that gender was significantly associated with dropping out of high school, they did not specify who, of boys or girls, were at highest risk of leaving school without a diploma.

In terms of family risk factors, family structure and parenting practices are the two factors most often associated with high school dropout. Results from studies analyzing the relationship between family structure and school dropout seemed to indicate that coming from a single parent family placed the student at higher risk of leaving school prior to graduation (Alexander et al., 1997; Ekstrom, Goertz, Pollack, & Rock, 1986; Rumberger, 1995; Violette, 1991). Rumberger (1995) found that students who lived in a single parent home were at higher risk of dropping out of school and were more likely to have repeated a grade than were students living with two parents. Findings from a study conducted by Violette (1991) supported those of Rumberger (1995) and suggested that not only were students from single parent homes at higher risk of dropping out than other students, but they were also more likely to come from families earning a low income, displaying low parental schooling, and having the example of a sibling who had dropped out of school. In addition to the variables described by Violette, Ekstrom et al. (1986) found that parents having low educational expectations for their children placed them at higher risk of dropping out. In the study by Alexander et al. (1997), similar findings were also obtained, although these researchers also found that single parents raising large families placed the child at high risk of dropping out due to the combination of risk factors in such a context. Although some researchers did consider gender in their analyses (Ekstrom et al., 1986), no results were reported pertaining to the interaction between family structure and gender.

In researching the relationship between parenting practices and school dropout, Fortin et al. (2001) found that, compared to non at-risk students, at-risk students reported more conflicts and less cohesion within the family, did not receive as much support and encouragement from their parents, nor did they show their emotions to or receive encouragement from other family members. Fortin et al.'s (in press) findings demonstrate that at-risk girls and boys perceive little cohesion within their families. Moreover, problems related to family life organization are reported as a predictive factor of school dropout for girls, while conflicts within the family and low parental affective support are predictive factors for boys. Potvin et al. (1999) found that the family factor most strongly associated with the risk of dropping out of school was parental affective support. Other associated factors included parental supervision and communication between parents and teachers. Results also showed that boys who had less affective support, less parental involvement, and less supervision were more likely to drop out than other boys while girls were more sensitive to parental involvement, supervision, affective support, and communication.

Apart from student behavior, which has already been discussed as a personal factor, school-related factors most often associated with dropping out of school are academic achievement, grade retention, and school experiences, including student-teacher relationships and classroom and school climates. Through quantitative analyses of the NELS data, Rumberger (1995) found that girls and boys were equally at risk of dropping out. However, when attitudes, behaviors, and academic achievement are statistically controlled, girls who exhibit the same (low) academic achievement as boys were at higher risk of dropping out of school than are boys. Similar findings were obtained by Battin-Pearson et al. (2000) who also found that academic achievement was a mediating factor in the dropout process and explained, in and of itself, 33% of the variance associated with dropping out of school.

Rumberger's (1995) analyses demonstrated that grade retention was the single most powerful predictor of high school dropout, a finding which was also obtained by Jimerson, Ferguson, Whipple, Anderson, and Dalton (2002) and Janosz et al. (1997), who specified that results from their study showed grade retention as a better predictor for girls than boys. Analyzing the data from the NELS, Goldschmidt and Wang (1999) determined that students who had been retained by the eighth grade were 3.8 times more likely to drop out of school than students who had not been retained while students who had been retained by the 10th grade were 2.4 times more likely to drop out of school than their nonretained peers. Goldschmidt and Wang noted that 45% of the students who had dropped out were 18 years old and should have completed their schooling before having reached that age. Ripple and Luthar (2000) determined that being older than others in their cohort, a consequence of grade retention, put the students at greater risk of dropping out than other students who had not been retained. The only reference made to analyses pertaining to the interaction between gender and grade retention was brought forth by Janosz et al. (1997).

Experiences that students have in school, with regards to their relationships with teachers and other students in the classroom and in the school, also appeared to be associated with their graduation status. In measuring the attitudes students held towards their teacher,

Rumberger (1995) found that students who perceived their teachers positively were 16% less likely to drop out than those students whose perceptions towards their teacher were negative. Fortin et al. (2001) found that students who were at risk of dropping out perceived less teacher support and little order or organization in the classroom. Fortin et al. (in press) also found that boys were more sensitive to school factors, more specifically negative attitudes towards the teacher, than were girls. In a study focusing on adolescent school experiences, Kasen, Cohen, and Brook (1998) found that schools emphasizing high levels of competence and fostering positive attitudes towards learning in the student body tended to have better social climates and lower levels of maladjustment. Moreover, they found that girls who attended schools where there were high levels of conflict were at greater risk of involvement in problematic behaviors, such as pregnancy and alcohol abuse, than were boys. Finally, results obtained by Battin-Pearson et al. (2000) showed that both low school bonding and bonding to antisocial peers were significantly associated with low academic achievement and contributed to increasing the risk of dropping out of school prior to 10th grade.

In summary, although many studies have focused on high school dropout, few have focused on gender differences. In terms of personal factors, results seem to indicate that boys were at higher risk of dropping out of school because of their externalized behavior problems while girls were at higher risk than boys due to internalized behavior problems. In terms of family factors, the risk of dropping out seemed to increase when boys or girls lived in a single parent home or in a home where there was little cohesion, supervision, communication and affective support, and many conflicts. In terms of school-related factors, results showed that academic achievement was a strong predictor of the dropout status, as was grade retention. Girls generally achieved better grades in school than did boys; however, when academic achievement was statistically controlled, girls were at higher risk of dropping out of school than boys. Furthermore, results showed that girls were more sensitive to grade retention than boys. Finally, the student's commitment, attitudes towards the teacher, and perceptions of the school and classroom climates seemed to be related to the risk of dropping out, with boys being more sensitive to school-related factors than girls.

The purpose of the study was twofold: The study aimed first to determine who, of boys or girls, were most at risk of dropping out of high school and second, to compare risk factors associated with dropping out in order to determine the extent to which these factors, and their interaction with gender, contributed to increasing the risk of dropping out of school prior to graduation. More specifically, this study aimed to compare boys and girls on personal, family, and school-related factors and to verify the strength of the relationship between these factors and the dropout risk according to gender.

Method

Participants

This descriptive-correlational study was conducted using a population of high school students from the Eastern Townships in Quebec. The sample was composed of 3,359 eighth grade students (1,696 boys and 1,663 girls) who participated in the first year of a larger, longitudinal study conducted by Fortin (2002) on school

achievement. All students enrolled in eighth grade in 2002 in the 18 schools belonging to four different school boards were systematically offered the opportunity to participate in the study. One thousand and ten students refused to participate. Students recruited were 13 to 17 years of age ($M = 15$) at the time of the first evaluation. From this sample, two groups were formed based on the scores obtained on the *Decisions* measure of dropout risk (Quirouette, 1988): 1,348 were at-risk students (40% of the sample) and 2,011 were not at-risk students (60% of the sample). Four schools were located in an urban setting considered as underprivileged (MEQ, 2004). All other schools were located in semi-urban or rural areas.

Measures

Six instruments were used in this study in addition to the academic achievement (cumulative year-end average), which was obtained for each student in mathematics and either French or English, depending on the language of instruction used in each school. The measure used to evaluate the risk of dropping out of school was *Decisions* (Quirouette, 1988). Composed of 39 questions, this questionnaire covers six risk dimensions: (1) family environment, (2) personal characteristics, (3) school plans, (4) academic abilities, (5) student-teacher relationship, and (6) school motivation. In order to determine the instrument's psychometric properties, Quirouette (1988) conducted test/retest procedures yielding a reliability correlation coefficient of .90 at time 1, .92 at time 2, and .93 at time 3. The Cronbach's alpha coefficient was found to vary from .85 to .90 for the set of six scales, substantiating the instrument's internal consistency.

The *Family Assessment Device* (FAD), (Epstein, Connors, & Salinas, 1983) is composed of 60 questions forming several scales measuring the social and environmental characteristics of the family. One of the scales represents the overall family functioning. As this is a self-reported measure, the questionnaire evaluates the student's perception of how the family is functioning. This scale is comprised of 12 items, six of which outline a positive family functioning while six evaluate deficient family functioning. For each statement, the student selects one answer from a four-point Likert-type scale ranging from "I totally agree" to "I totally disagree." The psychometric properties for this scale indicate an internal consistency of .86 (Cronbach's alpha) and a test/re-test reliability between .66 and .76.

The *Classroom Environmental Scale* (CES), (Moos & Trickett, 1987), measures the classroom social climate with scales focusing on student commitment, affiliation to other students, perceived teacher support, appropriateness of the task, competition with other students, order and organization in the classroom, understanding of the rules, and finally, teacher control and innovation. Each scale consists of five statements (total of 45 statements) for which the student responds either true or false. The CES shows adequate reliability (Cronbach's alpha between .52 and .75) and concurrent validity with other instruments (r between .16 and .40).

The *Child Behavior Checklist* (CBCL), (Achenbach, 1991), built for children aged four to 18, aims to evaluate problematic behavior such as externalized (aggressive behavior and delinquency) and internalized (anxiety, depression, withdrawal) behavior problems. For each of the 113 questions, the student chooses an answer on a three-point Likert-type scale. The internal validity for this measure has

been evaluated at .95 for the behavior problems scales and at .99 for the social competence scale. Its test/re-test reliability ranges from .84 to .97 for behavior problems and social competence, respectively.

The *Behavior Assessment Scale for Children* (BASC), (Reynolds & Kamphaus, 1992) measures the student's adaptive and problematic behavior using 130 questions composing 12 scales. Its psychometric properties are strong for internal and content validity and test/re-test reliability. In the context of this study, two scales were used, namely, the student's attitude towards the teacher and his or her attitude towards the school. The scales represent a total of 19 questions to which the student answers by true or false. The student is considered at risk on either scale if his or her score reaches six or more. The reliability for these two scales is good (Cronbach's alpha between .81 and .87).

The *Beck Depression Index* (BDI), (Beck, 1978) is a self-reported measure composed of 21 statements assessing the intensity of emotional, behavioral, cognitive, and somatic symptoms characteristic of depression. For each statement, the student chooses from a choice of four answers, from 0 to 3. The psychometric qualities of the BDI have been confirmed for Quebec adolescents, with internal consistency coefficients ranging from .86 to .88.

Procedure

After having been informed of the purpose of the study by the school principal, students received the written description of the research project and the consent form to be signed by willing participants and their parents. Students who did not agree or whose parents did not allow participation in the study were asked to leave the classroom when the evaluation took place. The students who agreed to participate answered the questionnaires in their classrooms during a 90-minute period of class time, supervised by trained research assistants. Data collection occurred during the spring of 2002. All questionnaires were administered in the students' language of instruction (French or English) and in the same order.

Results

This study aimed to compare boys and girls on personal, family, and school-related factors and to verify whether these factors are associated with the risk of dropping out of school prior to graduation according to gender. Descriptive statistics indicate that of the 3,359 students participating in the study, 1,348 (40.1%) were at risk including 745 boys (55.2%) and 603 girls (44.7%). The odds of dropping out for boys was 0.8, while the odds for girls was 0.57. The odds ratio was 1.396 ($\chi^2 = 25.337, p < .000$). In this cohort of Canadian adolescents, boys are at higher risk of dropping out of school prematurely than girls.

The first step to explain such an odds ratio was to compare girls and boys on several risk factors. Results obtained from independent sample t-tests (Table 1) indicate differences on personal, family, and school-related risk factors. More specifically, significant differences were found for externalized behavior problems ($t = -3.824$), depression ($t = 3.654$), attitudes towards the teacher ($t = -5.614$), and academic achievement (Mathematics: $t = 15.551$; French/English: $t = 16.628$). Boys reported more externalized behavior problems, less depression, more negative attitudes towards the teacher, and an overall

Table 1

Average scores obtained by boys and girls on personal, family, and school-related factors.

	Girls (means)	Boys (means)	t-test
Externalized behavior problems	12.7377	13.7556	-3.824***
Depression	10.31	9.25	3.654***
Family functioning	1.9551	1.9836	-1.643
Negative attitudes towards the teacher	2.7340	3.2184	-5.614***
Commitment	1.88	1.85	.691
Mathematics cumulative average (%)	72.4	70.35	4.197***
French or English (mother-tongue) (%)	72.7	66.7	16.628***

*** $p < .000$

lower academic achievement than did girls. No statistical difference was found for family functioning or commitment to school.

Further analyses were performed in order to determine whether the independent variables, appearing in Table 1, were indeed predictors of the risk of dropping out of school (dependent variable) and whether the relationship between these variables was different when considering gender. A logistic regression was performed including gender in the first block; externalized behavior problems, depression, family functioning, attitude towards the teacher, and academic achievement in the second; and the interaction between gender and other independent variables in the third block. Results from the logistic regression (Table 2) confirm that there is a significant relationship between gender and the risk of dropping out of school ($X^2 = 20.573$, $p < .000$, Nagelkerke $R^2 = .008$).

The second block of the logistic regression, which included all personal, family, and school-related risk factors showed a significant increase in the risk ($X^2 = 1372.160$, $p < .000$, Nagelkerke $R^2 = .459$). Moreover, each individual variable was also found to be significantly related to the risk of dropping out of school. The third block of the regression was added to test the interaction, which may or may not exist between gender and other independent variables. The chi-square change associated with this block was shown to be significant ($X^2 = 15.486$, $p < .05$, Nagelkerke $R^2 = .463$). Individual interaction terms suggest that depression and the student's attitude towards the teacher may be variables which interact more with gender.

The results obtained in the logistic regression led us to perform separate logistic regressions for boys and girls, using the same independent variables. Results comparing the logistic regression coefficients and the odds ratios pertaining to the dropout risk for girls and boys on the seven independent variables (see Table 3) indicate that all variables are statistically significant for girls and boys. When comparing results obtained for girls and boys on each variable, findings show that although there are statistically significant gender differences, the differences on each variable were very slim. Negative family functioning and a negative attitude towards teachers seem

to be variables which contribute to an increase in the odds of dropping out for boys, while depression, externalized behavior problems, lack of commitment, and poor academic performance increased the odds that the girls will drop out, but only by very small fractions of points.

In summary, gender is a predictor for the risk of dropping out of school, and boys are at higher risk than girls. All independent variables measured were found to be significant predictors of the risk of dropping out and their interaction with gender was also significant. More specifically, boys report more externalized behavior problems, less depression, and a more negative attitude towards teachers and show a lower academic achievement than do girls. Results also seem to indicate that the odds that a boy will drop out increase as his perception of family functioning and his attitude towards the teacher become more negative whereas the odds that a girl will drop out increase as she becomes more depressed and less committed to school and as she presents more externalized behavior problems and lower academic achievement. These findings can be explained in part by the statistical power obtained with a large sample. Despite the small gender differences found, the same variables seem to influence boys and girls in a similar fashion, suggesting that the models are very much alike.

Discussion

The first aim of this study was to determine who of boys or girls were most at risk of high school dropout. Results from this study indicate that the odds that boys will leave school prematurely are significantly higher than those of girls. These results differ on several points from those reported in the literature as there is a difference found between boys and girls and the boys belonging to this cohort are high school students, not primary school pupils.

There might be several explanations for the differences found, most of which are tied to methodological issues. First, studies having found no statistical difference in the risk level used relatively small samples (Ripple & Luthar, 2000), evaluated the risk in students who were younger than those participating in this study (Gélinas et al.,

Table 2

The influence of gender, personal, family, and school-related factors and their interaction on the dropout risk.

Block	Independent variable	Logistic regression coefficient (b)	Wald	Odds ratio (Exp. B)
1	Gender	.332***	24.574	1.393
X^2 block = 20.573 ($p < .000$); $df = 1$; $R^2 = .008$; *** $p < .000$				
2	Externalized behavior problems	.020***	10.395	1.021
	Depression	.046***	54.579	1.047
	Family functioning	1.003***	105.972	2.728
	Commitment	-.225***	33.410	.799
	Negative attitude towards the teacher	.229***	145.401	1.258
	Mathematics	-.031***	54.049	.969
	French / English	-.026***	19.598	.974
X^2 block = 1372.160 ($p < .000$); $df = 7$; $R^2 = .459$; *** $p < .001$				
3	Gender*Externalized behavior problems	-.007	.265	.993
	Gender*Depression	-.035**	7.627	.966
	Gender*Family functioning	.112	.326	1.119
	Gender*Commitment	-.019	.061	.981
	Gender*Attitude towards the teacher	.096**	6.238	1.101
	Gender*Mathematics	-.006	.515	.994
	Gender*French / English	-.006	.289	.994
X^2 block = 15.486 ($p < .05$); $df = 7$; $R^2 = .463$; ** $p < .01$				

Table 3

The influence of personal, family, and school-related factors on the dropout risk for boys and girls.

Variables	Girls ^a		Boys ^b	
	Logistic regression coefficients (b)	Odds ratio (Exp. B)	Logistic regression coefficients (b)	Odds ratio (Exp. B)
Externalized behavior problems	.024	1.025**	.018	1.018**
Depression	.066	1.068***	.031	1.031***
Family functioning	.937	2.551***	1.049	2.854***
Commitment	-.218	.804***	-.237	.789***
Negative attitude towards the teacher	.178	1.195***	.274	1.316***
Mathematics	-.028	.973***	-.034	.967***
French / English	-.024	.976***	-.030	.970***

a: $X^2 = 668.882$ ($p < .000$); $df = 7$; $R^2 = .454$; *** $p < .000$, ** $p < .05$

b: $X^2 = 718.825$ ($p < .000$); $df = 7$; $R^2 = .463$; *** $p < .000$, ** $p < .05$

2000), and finally might have used different tools to measure the risk level. Second, two studies found gender differences only in primary school pupils (Alexander et al., 1997; Lipsey & Derzon, 2000). As our study was limited to high school, it cannot extrapolate and determine whether boys who were at risk in high school were also at risk in primary school. Finally, studies, which found girls to be at higher risk of dropping out, evaluated large American high school populations (Goldschmidt & Wang, 1999), and some studies had statistically controlled for academic achievement (Battin-Pearson et al., 2000; McNeal, 1997). This study was conducted using a sample of Canadian students. There might exist fundamental differences between American and Canadian youth or between American and Canadian institutions (family and school), which could contribute to this difference, although differences in the tools used to assess the risk are more likely.

The second aim of this study was to determine if the independent variables contributed to increasing the high school dropout risk and whether the interaction between gender and other independent variables contributed to increasing the odds of dropping out of school. Results obtained generally support the findings of studies having assessed the personal (externalized behavior problems and depression), family (functioning), and school-related (academic achievement, commitment, and attitude towards the teacher) predictors of the dropout risk. In terms of personal risk factors, results from the t-tests show that boys scored significantly higher than did girls on externalized behavior problems while girls scored significantly higher than boys on the depression scale, results which support both those of Marcotte et al. (2001) and of Fortin et al. (2001). When externalized behavior problems and depression were entered into the logistic regression, both variables were found to contribute to an increase in the risk of dropping out of high school. As the logistic regression model including the interaction of gender and both of these variables were statistically significant, separate logistic regressions were conducted for girls and boys. Results show that both of these variables increase the odds that both boys and girls will drop out, although the odds ratio is slightly higher for girls on both variables.

The scores obtained by girls and boys on the global family functioning was initially not found to be statistically significant in the t-tests. However, this family variable was found not only to be a predictor of the dropout risk, but was also the strongest predictor in the second and third blocks of the logistic regression. The separate logistic regressions conducted for boys and girls showed that (negative) family functioning placed the boys at higher odds of dropping out than it did girls and was still the strongest predictor. Family functioning included elements of decision making and problem solving within the family, affective support, acceptance of family members and the ability to talk about feelings and to get along with other family members. These findings tend to support those of Fortin et al. (2001) and those of Potvin et al. (1999), although the global family functioning scale is not as specific as each of the subscales used by these authors.

Of the school-related factors initially evaluated in the t-tests, only the gender difference pertaining to commitment was not found to be statistically significant. However, results from the logistic regressions demonstrate that the lack of commitment does contribute to

increasing the risk of dropping out and the interaction between gender and commitment was also found to contribute to an increase in the dropout risk. Further analyses by gender showed that the odds that girls will drop out increase slightly more than those of boys as their commitment to school decreases. Although Battin-Pearson et al. (2000) had not distinguished between boys and girls, they had also found that low school bonding does increase the likelihood that a student will drop out of school prior to 10th grade. This team had also found that boys had lower academic achievement than girls, a finding which is supported by our research. In the cohort evaluated, girls displayed a higher academic (2% to 6% higher) achievement than did boys, at a statistically significant level. Academic achievement, as a variable included in the logistic regression, was also found to influence the dropout risk, the risk increasing as the academic achievement decreased. Lower performance in mathematics and French/English increased the odds that girls will drop out. Finally, boys obtained higher scores than did girls on the negative attitudes towards the teacher scale. The negative attitudes towards the teacher and its interaction with gender were found to be a significant predictor of the dropout risk in both the second and third blocks of the logistic regression. Results obtained on the separate logistic regressions for boys and girls indicate that the odds that boys with negative attitudes will drop out are higher than those of girls with similar attitudes. This tends to support the results obtained by Rumberger (1995).

These findings are interesting on several levels. First, gender does contribute to increasing the risk of dropping out of school, as do global negative family functioning, externalized behavior problems, depression, low commitment to school, negative attitudes towards the teacher, and low academic achievement. Second, the odds that boys will drop out of school are higher than the odds that girls will drop out prematurely. Results from separate logistic regressions for boys and girls indicate that the variables which seem to contribute to an increase in the odds for boys are, in order of importance, negative family functioning, negative attitude towards the teacher, depression, externalized behavior problems, low academic achievement, and low commitment to school. The odds that girls will drop out, although globally lower than the boys', were higher than the boys on all variables except for negative family functioning and negative attitudes towards the teacher. Third, although researchers found that school variables might be the most significant predictors of school dropout (Battin-Pearson et al., 2000; Janosz et al., 1997), our results show that negative family functioning is the strongest predictor for both boys and girls, but contributes to increasing the odds that boys will drop out to a greater extent than it did the odds that girls would leave school prematurely. Boys who perceive negative attitudes towards teachers are also at higher odds of dropping out of school than other students. These two findings may suggest that when boys foster negative perceptions towards adults in the home and at school, they become at higher risk of dropping out of school. Whether negative perceptions lead to a decrease in academic achievement and consequently to a lack of commitment to school is beyond the scope of this study. However, these findings may generate a target for dropout prevention

in helping at-risk boys to establish and maintain good relationships with significant adults in their lives.

There are limitations to this study. The first limitation refers to the cross-sectional research design of the study which does not allow for the comparison of the risk across time, a variable which might fluctuate with time. As students were evaluated in their second year of their secondary education (eighth grade), with three years remaining before graduation, the risk that they will drop out might increase as their studies become more demanding and their motivation decreases. Another important factor is also the legal obligation to attend school up to 16 years of age. As more students reach that age, the risk that they will leave the school context might increase, particularly for those students who were retained. Another limitation pertains precisely to the inability to assess whether or not students had been retained in school, a variable which might in turn influence the students' commitment to school.

Conclusion

Little research to date has focused specifically on gender differences in the dropout process. The purpose of this study was to determine whether there are gender differences associated with the high school dropout risk. The findings show that the odds that boys will drop out of school prematurely are significantly higher than those of girls. When the risk factors were evaluated to determine if they contributed to increasing the odds of the dropout risk, they were all found to be significant predictors. Moreover, the interaction between independent variables and gender also contributed to an increase in the dropout risk. Why are the odds that boys will drop out higher than those of girls?

The results from the logistic regression show that the two most significant predictors of high school dropout are negative family functioning and negative attitudes towards the teacher. The results from the separate logistic regressions performed for boys and girls demonstrate that the largest difference in the odds ratios between boys and girls are found for both of these variables, with boys scoring significantly higher than girls. In essence, boys' negative perceptions of their relationships with adults in the home and the school settings may contribute to placing them at significantly higher odds of dropping out. The odds that girls will drop out, on the other hand, are affected by both internalized and externalized behavior problems, academic achievement, and commitment. As behavior problems increase and academic achievement and commitment decrease, the odds that girls will drop out increase.

Although this study brings forth some differences between boys and girls and confirms differences obtained in previous research pertaining to specific predictors, there is still a portion of the equation which remains unknown. All factors evaluated seem to be good predictors for boys and girls. This suggests that the theoretical framework underlying the dropout process may be the same for boys and girls, but might also need to be broadened to include other variables. As more boys are placed at risk of dropping out of school and as more of them in fact do drop out, research will need to address why this happens in order to provide practitioners with accurate targets for focused prevention programs.

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School Connectedness Predicts Bullying: An Analysis of Perceptions Among Middle School Students

Deana Hollaway Young

Abstract: School connectedness is most effective in protecting adolescents against at-risk behaviors, including early sexual initiation, polydrug use, delinquency, and violence. The relationship between school connectedness and bullying was examined in this study of 793 fifth through eighth graders in Alabama. School connectedness was found to be predictive of bullying; school ties, victimization, and bullying were inversely correlated. Victimization and bullying were determined to be positively correlated. Students with strong school affiliations were least likely to perceive victimization, or engage in bullying. The negative association between school connectedness, victimization, and bullying supports the importance of stronger school connectedness. Future research may explore causal relationships among these factors.

School connectedness is the leading protective factor for adolescents against multiple at-risk behaviors (Bonny, Britto, Klostermann, Hornung, & Slap, 2000). It deals with the students' affiliation with their school: their sense of belonging to a community, their trust in school authorities, their sense of safety, and their confidence in the school's commitment to them (Bonny et al., 2000). Schools that foster a sense of connectedness among students have reduced the incidence of bullying and other at-risk behaviors (Natvig, Albrektsen, & Qvarnstrom, 2001). Students who do not feel safe or treated fairly tend to disconnect from school (Bonny et al., 2000). They are more likely to engage in smoking, alcohol and drug use, truancy, early sexual activity, and violence (Bonny et al., 2000; Ellickson & McGuigan, 2000; Natvig et al. 2001).

Bullying interferes with school connectedness and threatens the long-term physical and emotional health of children. Although an awareness of the potential harm of bullying has long existed, school shootings in the 1990s brought the issue to public attention (Hazler, 2000; Elliott, Hamburg, & Williams, 1998). In more than 60% of the American school shootings, bullying preceded the incidents (Harris, Petrie, & Willoughby, 2002). Several of the shooters had experienced chronic bullying (Harris et al., 2002). The chilling result of long-term victimization highlights the urgency to prevent bullying, especially since so many children are routinely exposed to it. In this country alone, as many as 4.8 million children experience some form of bullying every year (Harris et al., 2002).

Olweus (1993) defined bullying as physical or verbal actions that are intended to injure another person. The goal of bullying is to degrade and humiliate the victim (Weir, 2001). Bullying behaviors range from chronic harassment to physical battery, extortion, and threats (Flannery & Singer,

1999). Verbal harassment includes name-calling and persistent taunts often about the perceived sexual orientation of the victims (Vessey, Duffy, Sullivan, & Swanson, 2003).

A new form of harassment has surfaced via the World Wide Web. The prevalence of online communication has allowed bullies to become "cyber-bullies" who target and exploit their vulnerable peers (Beckerman & Nocero, 2003; Wolak, Mitchell, & Finkelhor, 2003). The threat of "cyber-bullying" appears to be increasing, especially among students in grades six through eight (Blair, 2003). The repercussions from offensive online remarks often spill over to school (Beckerman & Nocero, 2003). All forms of bullying endanger adolescent health and school functioning.

The purpose of this study was to examine the relationship between bullying and school connectedness. The research sought to determine if perceptions of school connectedness predicted the amount of bullying that was perceived by public middle school students in a small town in Alabama. It further explored whether school connectedness was a bulwark against bullying or if perceptions of the two were unrelated.

Bullying generally begins in elementary school and crests in frequency and intensity as students enter the middle grades (Voors, 2000; Weir, 2001). The increase is associated with the changes in social structure that students encounter when making the transition to the higher grades (Harris, Petrie, & Willoughby, 2002). Such changes provide opportunities for children to attempt to increase their popularity and social standing through bullying. Middle school boys experience short-term gains in their popularity by engaging in bullying behaviors. Although these gains eventually level off and then decrease by ninth grade, bullying continues for both boys and girls, through high school (Flannery & Singer, 1999; Harris et al., 2002).

Strong school connections help young people to feel supported rather than rejected by their peers and teachers (King, Vidourek, Davis, & McClellan, 2002). Secure, close bonds to school reduce the risk for aggressive behaviors, dropping out, and other antisocial behavior (Hawkins, Catalano, Kosterman, Abbott, & Hill, 1999). The findings of the National Longitudinal Study of Adolescent Health suggest that adolescents also experience the highest rates of academic success and lowest rates of at-risk behaviors when they are well connected to their schools (Bonny et al., 2000).

Bandura's social learning theory served as the theoretical framework underlying the value of school connectedness in preventing bullying. The theory asserts that children learn from observing and attending to the function of behaviors (Bandura, 2001). Children learn from standards set forth in various contexts, such as rules from within a school (Ribes-Inesta & Bandura, 1976; Hetherington & Parke, 1999). When schools provide an environment that promotes prosocial behaviors with consistent rules against bullying, students learn self-regulation through adherence to school standards. Lerner, Lerner, DeStefanis, and Apfel (2001) pointed out that the connections among individual, cognitive, psychological, genetic, and social variables influence behavior. Those connections contribute to cognitive and behavioral processes, especially during adolescent development.

Hawkins et al. (1999) asserted that schools have the opportunity to connect with students and to provide acceptable behavioral standards. The stronger the connection to school, the more likely students are to comply with behavioral standards, rather than engage in at-risk behaviors. School connectedness provides the social bonds necessary for strong attachment and commitment to prosocial behaviors (Hawkins et al., 1999). Schools are the primary vehicles for the effective prevention of aggressive behaviors. Even if parents reinforce aggression at home, schools have the power to create the conditions that discourage those behaviors (McEvoy & Welker, 2000).

Methods

This research comprised a quantitative study of archival data exploring two critical issues affecting school children: bullying and school connectedness. Results from two anonymous surveys were analyzed to determine the relationship between scores from the Olweus Bully/Victim Questionnaire and the School Connectedness Scale. The analysis of archival data included responses from the 793 survey participants in fifth through eighth grade. The results revealed the levels of perceived bullying and school connectedness.

The research tools of this quantitative study are the Revised Olweus Bully/Victim Questionnaire (OBVQ) and the School Connectedness Scale (SCS). Scores from these instruments were analyzed to discern the linear relationship between the perceived amount of bullying and school connectedness.

Revised Olweus Bully/Victim Questionnaire (OBVQ)

The OBVQ is the most widely used questionnaire to assess the extent of bullying in countries throughout the world (Ortega et al., 2001). Developed in 1983, the OBVQ was most recently revised by Olweus in 1993 (Solberg & Olweus, 2002). The anonymous ques-

tionnaire consists of 39 questions. The questions concern frequency of victimization and bullying events, communication about incidents, types of bullying behaviors, and attitudes toward bullying (Ortega et al., 2001). Olweus (2001) noted that his self-report instrument has yielded internal consistency, reliability, and construct validity, Cronbach's alpha = .80.

Olweus (2001) suggests using the sum of responses for questions four through 13 to determine each student's "tendency to be bullied," or level of victimization. The "tendency to bully other students" is calculated by using the sum of responses for questions 24 through 33. The reliability of these indices has alpha coefficients in the .80 to .90 range. The OBVQ is a valid and reliable measure, as is the School Connectedness Scale.

School Connectedness Scale (SCS)

The SCS questions are derived from instruments in the National Longitudinal Study of Adolescent Health, a program project designed by J. Udry, P. S. Bearman, and K. M. Harris, and funded by Grant P01-HD31921 from the National Institute of Child Health and Human Development, with cooperative funding from 17 other agencies (Bearman, Jones, & Udry, 1997). Ronald R. Rindfuss and Barbara Entwisle deserve special acknowledgement for assistance in the original design.

Participants

The archival data came from 811 students in grades five through eight who completed the School Connectedness Scale and the Olweus Bully/Victim Questionnaire at their schools.

Procedures

Survey records were reviewed and analyzed to establish the correlation between the Olweus Bully/Victim Questionnaire (OBVQ) and the School Connectedness Survey (SCS). The schools administered these two anonymous, voluntary surveys to students in grades five through eight. The OBVQ Junior Edition and SCS were administered to students in grades five and six. The OBVQ Senior Edition and SCS were given to students in grades seven and eight. The difference between the Junior and Senior Editions of the OBVQ involves the reading level of the items in the questionnaire (Olweus, 2001).

Data Analysis

The archival data from the School Connectedness Scale (SCS) and the Olweus Bully Victim Questionnaire (OBVQ) were analyzed to determine the relationship between the two variables. An initial screening of the data revealed that only 793 of the 811 completed surveys contained valid responses, using as a criterion having fewer than six blank questions per 10-item scale. Surveys lacking answers to six or more questions were excluded from analysis. Eighteen surveys contained insufficient responses, and, therefore, 2.2% were deleted by this rule. This procedure was undertaken in order to ensure the validity of the data.

Bully and Victim factor scores were computed as averages across the respective indicators for each of the 793 valid questionnaires. Thus, in practical terms, missing data within each respective factor for each respondent were replaced with the mean value of the non-

missing indicator values for the factor. With the victimization scores, this procedure was taken for approximately 9% in fifth; 11% in sixth; 5% in seventh, and 4% in eighth grades. The same process was undertaken with the bullying scores for approximately 7% of the lower grades, and 5% of the higher grades.

After addressing the missing data for each of the factors, the assumption of normality was made and Pearson product-moment correlations r were computed between the factor scores. Additional investigations with histograms and chi-square tests, though, revealed the existence of non-normality.

The data were then further analyzed with the Spearman rank order correlation. Table 1 (see Appendix) presents the rank order correlation which yielded essentially the same results as the Pearson r correlation: Spearman's rho correlation coefficient for victimization = -0.26 (Pearson $r = -0.33$), bullying = -0.24 (Pearson $r = 0.26$), and victimization and bullying = $.26$ (Pearson $r = .23$).

Results

The results of this study reveal a moderate association between school connectedness and the variables of victimization and bullying. An inverse correlation was determined to exist for school connectedness and both factors. Though this investigation did not involve causal research, it supported the predictive relationship of school connectedness and bullying. The data analysis also uncovered additional correlations between victimization and bullying.

Key Findings

School connectedness and victimization. School connectedness and victimization were found to be inversely correlated across grades and genders as presented in Tables 2 – 8 (see Appendix). Minor variations between grades and genders suggest that a small degree of victimization does not interfere with school affiliations. It is possible that students accept a certain level of bullying in school; thus, its existence alone does not correlate with weak ties to school. This data analysis revealed that, for individual students, as the level of bullying increased, school connectedness decreased. Males experienced both the greater amount of victimization and the greater participation in bullying behaviors. The least connected students were males who also experienced the highest levels of victimization.

Two male students (one in seventh grade and one in the eighth) out of the 793 participating in this study had school connectedness scores of five, indicating no connections to school. Both students had the highest rate of victimization (scoring 50 out of 50), and the seventh grade student had an equally high rate of bullying behaviors (scoring 46 out of 50). By self-report, these two boys had experienced chronic victimization and had disengaged from school. Li, Howard, Stanton, Rachuba, and Cross (1998) noted that ongoing victimization contributed to a lack of strong school ties among youth. In this research, the disconnected seventh grade male student with the lower SCS score was also a self-described aggressor with the highest amount of bullying behaviors reported on the OBVQ.

School connectedness and bullying. Bullying was found to have a negative relationship with school connectedness. Although the association was moderate, the higher the level of school connectedness, the lower the level of perceived bullying behaviors. By con-

trast, limited school ties and lower school connectedness scores correlated with a higher tendency to bully. According to this research, bullies did not regard themselves as having close relationships with students and teachers. Voors (2000) noted that bullies were less likely to feel a sense of belonging to school than did students who did not engage in bullying behaviors. Similarly, alienation from school has a strong relation to bullying behaviors (Dake, Price, & Telljohann, 2003). As a whole, perceptions of bullying and victimization were inversely correlated with school connectedness.

The strength of school connectedness was predictive of the level of both victimization and of bullying. In this research, boys reported lower levels of school connectedness than girls did, with a mean score of 18.7 for the girls and a mean score of 16.8 for the boys. Table 9 contains the estimated marginal means for school connectedness. These findings contradict those of Bonny et al. (2000) which found boys to be more connected than girls. The boys in this study, however, reported more bullying involvement than the girls did, which supports the conclusion that increased bullying decreases school connectedness. Bullying and victimization data is found in Tables 10 – 11 (see Appendix).

Additional findings. Another relationship emerged in the data analysis. Victimization and bullying were found to have a positive correlation r . Victims and bullies were more likely to perceive similarly low levels of school connectedness. In addition, the tendency to be victimized was linked to the tendency to bully. Chandras (1999) indicated that the number of victimized adolescents, who were also bullies, was growing. After experiencing chronic harassment from peers, many victims become the aggressors, seeking out potential victims themselves. Voors (2000) noted that victimized bullies experienced the greatest negative effects of bullying. They were more likely to express suicidal ideation and carry out violent acts. Dake et al. (2003) note that bully/victims experienced the least amount of school bonding, which is consistent with these findings.

This research supports previous studies that confirm the danger posed by bullying. Victimization and bullying contribute to alienation and poor school bonding, limiting the ability for victims and bullies to develop positive connections at school (Nansel, Overpeck, Haynie, Ruan, & Scheidt, 2003). Additionally, the results support the protective factors of school connectedness and their potential to predict the level of victimization and bullying in the schools. The results of this research, however, must be weighed against their strengths and limitations.

Limitations

The generalizability of these findings presents the most serious limitation to this study. Analyzing archival data from a single geographic area restricts the findings to describing only what has occurred within the research sample. In addition, the results did not include the age, race, or ethnicity of the students. In the United Kingdom, no differences in bullying existed with regard to race and ethnicity, yet a cross-national study of students in England and Germany found that ethnic minorities experienced slightly more victimization than other groups (Dake et al., 2003).

Although Nansel et al. (2001) determined that no significant difference in the prevalence of bullying existed between racial and

ethnic groups, two other U.S. studies yielded conflicting results. In a large, midwestern state, Hispanic students were found to have a decreased likelihood of victimization, with no differences between Whites and Blacks, while a California study found White students more likely to be victimized by Black aggressors (Dake et al., 2003).

Kimmel and Mahler (2003) remind researchers recent school shooters with multiple victims have been White males whose targets were also White. According to the U.S. Department of Justice (2001), a higher percentage of White students reported being bullied at school than did members of any other race or ethnicity (Devoe et al., 2002). The 2001 data were drawn from a population of 24,315,190 students, ages 12 through 18. The Justice Department's statistics found that 8.5% of the students who reported being bullied were White; 5.9% were Black; 7.8% were Hispanic, and 6.6% were other non-Hispanic students. Asian students reported the least amount of bullying (Devoe et al., 2002).

Olweus (2003) noted that language differences may affect the prevalence of bullying; the concept of bullying may not be as familiar to students from non-Western cultural backgrounds. Therefore, the incidence of bullying may not have been accurately reported by students for whom English is not the primary language. Similarly, the study would have been enhanced with data that compared girls' perceptions of school connectedness, victimization, and bullying with regard to race and ethnicity. The lack of racial and ethnic information is a serious limitation in this study. Similar findings, however, were found in another American study using the Olweus Bully Victim Questionnaire.

In rural South Carolina, 23% of 6,000 fourth through sixth grade students reported victimization, and 20% reported engaging in bullying behaviors (Olweus, Limber, & Mihalic, 1999). These figures coincide with this study's findings in a small town in Alabama involving 793 students in grades five through eight where the comparable perceptions of victimization were 27.5% and 23.5%. The South Carolina study also found higher rates of victimization (25%) and bullying (20%) in the sixth grade, as in this study with similarly high rates for sixth grade students with 31% for victimization and 24% in bullying behaviors. These findings support the reliability of this data and the strength of the research.

Despite these limitations, this research supports the need to continue weighing the protective factors of school connectedness against the serious consequences of bullying. This study supports school connectedness as a predictive factor for victimization and bullying. Students who had strong ties to school were the least likely to experience high levels of victimization or to engage in bullying behaviors.

Victims and bullies had the weakest affiliations to school, with victim aggressors experiencing the least amount of school connectedness. These findings are consistent with previous studies that determined that school alienation was greater for victimized bullies (Narvig et al., 2001). Additionally, this study is also consistent with findings that revealed one of the top predictors of bullying is the tendency to be withdrawn or isolated (Viadero, 2003).

Scores from the School Connectedness Scale will indicate the level of school connectedness, as well as the level of potential victimization and bullying that is taking place. The students with lower

scores will have a weak commitment to school and will be more than likely experiencing some level of bullying. Mulvey and Cauffman (2001) noted that school commitment was an accurate predictor of violent behaviors in the school setting. The Olweus Bully/Victim Questionnaire, though, will help educators to understand specific details about the bullying problem, including where it occurs most frequently and how often it occurs.

According to the National Longitudinal Survey on Adolescent Health data, schools play a pivotal role in violence prevention (Bonny et al., 2000; Borowsky, Ireland, & Resnick, 2001; McNeely, Nonnemaker, & Blum, 2002). Nansel and her colleagues (2001) noted that a costly, structured program might not be necessary to address the bullying problem. Prevention efforts should focus on reducing adult and peer acceptance of bullying behaviors. Pelligrini (2002) noted that adolescents held less negative views of aggression than did other age groups. Aggression and the devastating consequences of bullying are too great to dismiss as a part of normal childhood development. While bullying threatens adolescent health, school connectedness will help adolescents build a healthy bridge to adulthood.

Several factors associated with school connectedness can be addressed without implementing a new prevention program. Among these factors are positive classroom climate, extracurricular activities, fair disciplinary policies, and small school sizes (McNeely et al., 2002). Garbarino and de Lara (2002) noted that school size was a critical factor in student safety. The researchers pointed out that schools with more than 500 students tended to be more unpredictable and difficult for staff to supervise (Winter, 2001).

Implications for Future Research

Future research should continue to examine the decisive influence of school connectedness. Causal research is needed to determine if school connectedness protects students from victimization and from the tendency to bully. Further study is also needed to evaluate programs designed to build school connectedness and to examine the role that school connectedness plays in bullying prevention.

In summary, the pervasive and complex problem of bullying requires ongoing vigilance in research and the development of comprehensive prevention programs. Almost five million students are bullied in schools each year (Harris et al., 2002). Schools possess the tools to deter bullying through building school connectedness. Forging strong bonds with students will greatly reduce the incidence and the consequences of victimization and bullying behaviors. Educators and parents should endeavor to strengthen ties to students by connecting with all young people.

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Appendix

Table 1

Correlations of school connectedness, victimization, and bullying for all grades.

Factor	Method of Analysis	SCS	VICTIM avg q4-q13	BULLY avg q24-q33
SCS	Pearson Correlation	1	-0.338*	-0.265*
	N	793	793	793
	Sig. (2-tailed)	.000	.000	.000
VICTIM	Spearman rho	1.000	-0.263	-0.242
	Sig. (2-tailed)	.	0.000	0.000
	Spearman rho	-0.263	1.000	.268*
	Sig. (2-tailed)	0.000	0.000	0.000

*Correlation is significant at the 0.01 level (2-tailed).

Table 2

Correlations of school connectedness, victimization, and bullying for grades 5 - 6.

Grade	Factor	Analysis	SCS	VICTIM avg q4-q13	BULLY avg q24-q33
5:00	SCS	Pearson Correlation	1	-0.374(**)	-0.169(*)
		Sig. (2-tailed)	.	0.000	0.014
		N	211	211	211
6:00	VICTIM	Pearson Correlation	-0.374(**)	1	.217(**)
		Sig. (2-tailed)	.000	.	.002
		N	194	194	194
5:00	SCS	Pearson Correlation	1	-0.318(**)	-0.302(**)
		Sig. (2-tailed)	.	0.000	0.000
		N	194	194	194
	VICTIM	Pearson Correlation	-0.318(**)	1	.311(**)

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

Table 3

Correlations of school connectedness, victimization, and bullying for grades 7 - 8.

Grade	Factor	Analysis	SCS	VICTIM	BULLY
7:00	SCS	Pearson Correlation	1	-0.339(**)	-0.406(*)
		Sig. (2-tailed)	.	0.000	0.000
		N	200	200	200
8:00	VICTIM avg. q4 - q13	Pearson Correlation	-0.339(**)	1	.352(**)
		Sig. (2-tailed)	.	0.000	0.008
		N	188	188	188
8:00	SCS	Pearson Correlation	1	-0.381(**)	-0.193(**)
		Sig. (2-tailed)	.	0.000	0.008
		N	188	188	188
8:00	VICTIM avg. q4 - q13	Pearson Correlation	-0.381(**)	1	.137
		Sig. (2-tailed)	0.000	.	0.060
		N	188	188	188

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

Table 4

Correlations of school connecteanness, victimization, and bullying by gender.

Gender	Factor	Analysis	SCS	VICTIM avg q4-q13	BULLY avg q24-q33
	SCS	Pearson Correlation	1.000	0.076	0.321
		Sig. (2-tailed)	.	0.835	0.366
		N	10	10	10
	VICTIM avg. q4-q13	Pearson Correlation	0.076	1.000	-0.136
		Sig. (2-tailed)	0.835	.	0.708
		N	10	10	10
1:00 female	SCS	Pearson Correlation	1.000	-0.332	-0.265
		Sig. (2-tailed)	.	0.000	0.000
		N	390	390	390
1:00 female	VICTIM avg. q4-q13	Pearson Correlation	-0.332	1.000	0.162
		Sig. (2-tailed)	0.000	.	0.001
		N	390	390	390
2:00 male	SCS	Pearson Correlation	1.000	-0.324	-0.244
		Sig. (2-tailed)	.	0.000	0.000
		N	393	393	393

Table 5

Correlations of school connectedness, victimization, and bullying and gender for grade 5.

Gender	Factor	Analysis	SCS	VICTIM avg q4-q13	BULLY avg q24-q33
1.00 female	SCS	Pearson Correlation	1.000	-0.269(**)	-0.209(*)
		Sig. (2-tailed)	.	0.004	0.026
		N	114	114	114
	VICTIM avg. q4-q13	Pearson Correlation	-0.269(**)	1.000	0.295(**)
		Sig. (2-tailed)	0.004	.	0.001
2.00 male	SCS	Pearson Correlation	1.000	-0.392(**)	-0.106
		Sig. (2-tailed)	.	0.000	0.303
		N	97	97	97
	VICTIM	Pearson Correlation	-0.392(**)	1.000	0.171
		Sig. (2-tailed)	0.000	.	0.094

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

Table 6

Correlations of school connectedness, victimization, and bullying and gender for grade 6.

Gender	Factor	Analysis	SCS	VICTIM avg q4-q13	BULLY avg q24-q33
1.00 female	SCS	Pearson Correlation	1.000	-0.392(**)	-0.369(**)
		N	88	88	88
	VICTIM	Pearson Correlation	-0.392(**)	1.000	0.079
		Sig. (2-tailed)	0.000	.	0.464
2.00 male	SCS	Pearson Correlation	1.000	-0.233(*)	-0.246(*)
		Sig. (2-tailed)	.	0.020	0.014
		N	100	100	100
	VICTIM	Pearson Correlation	-0.233(*)	1.000	0.387(**)
		Sig. (2-tailed)	0.000	.	0.094

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

Table 7

Correlations of school connectedness, victimization, and bullying and gender for grade 7.

Gender	Factor	Analysis	SCS	VICTIM avg q4-q13	BULLY avg q24-q33
1.00 female	SCS	Pearson Correlation	1	-0.331	-0.313
		Sig. (2-tailed)	.	0.001	0.002
		N	100	100	100
2.00 male	VICTIM	Pearson Correlation	-0.331	1	0.219
		Sig. (2-tailed)	0.001	.	0.028
		N	98	98	98
1.00 female	SCS	Pearson Correlation	1	-0.322	-0.454
		Sig. (2-tailed)	.	0.001	0.000
		N	98	98	98
2.00 male	VICTIM	Pearson Correlation	-0.322	1	0.416
		Sig. (2-tailed)	0.001	.	0.000
		N	98	98	98
1.00 female	SCS	Pearson Correlation	1	1.000	-1.000
		Sig. (2-tailed)	1.000	1	-1.000
		N	98	98	98

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

Table 8

Correlations of school connectedness, victimization, and bullying and gender for grade 8.

Gender	Factor	Analysis	SCS	VICTIM avg q4-q13	BULLY avg q24-q33
1.00 female	SCS	Pearson Correlation	1	-0.377	-0.140
		Sig. (2-tailed)	.	0.000	0.192
		N	88	88	88
2.00 male	SCS	Pearson Correlation	1	-0.403	-0.217
		Sig. (2-tailed)	.	0.000	0.032
		N	98	98	98
1.00 female	VICTIM	Pearson Correlation	-0.403	1	0.132
		Sig. (2-tailed)	0.000	.	0.194
		N	98	98	98

Table 9

Estimated marginal means of dependent variable: SCS.

VARIABLE	MEAN	STANDARD ERROR	95 % CONFIDENCE INTERVAL	
			LOWER BOUND	UPPER BOUND
GRAND MEAN	17.737	0.139	17.464	18.011
GENDER				
1.00 FEMALE	18.690	0.198	18.301	19.079
2.00 MALE	16.785	0.196	16.400	17.170
GRADE				
5.00	17.656	0.268	17.129	18.183
6.00	18.432	0.284	17.874	18.989
7.00	17.636	0.276	17.094	18.179
8.00	17.226	0.285	16.666	17.785

Table 10

Estimated marginal means with dependent variable: VICTIM.

VARIABLE	MEAN	STANDARD ERROR	95 % CONFIDENCE INTERVAL	
			LOWER BOUND	UPPER BOUND
GRAND MEAN	1.466	0.023	1.422	1.511
GENDER				
1.00 FEMALE	1.389	0.032	1.327	1.453
2.00 MALE	1.543	0.032	1.480	1.605
GRADE				
5.00	1.506	0.044	1.420	1.591
6.00	1.555	0.046	1.465	1.646
7.00	1.402	0.045	1.315	1.490
8.00	1.403	0.046	1.312	1.494

Table 11

Estimated marginal means with dependent variable: BULLY.

VARIABLE	MEAN	STANDARD ERROR	95% CONFIDENCE INTERVAL	
			LOWER BOUND	UPPER BOUND
GRAND MEAN	1.184	0.015	1.155	1.213
GENDER				
1.00 FEMALE	1.130	0.021	1.089	1.172
2.00 MALE	1.237	0.021	1.196	1.278
GRADE				
5.00	1.117	0.029	1.061	1.173
6.00	1.205	0.030	1.145	1.264
7.00	1.179	0.029	1.122	1.237
8.00	1.234	0.030	1.175	1.294

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