Reading Research Quarterly
Vol. 38, No. 3
July/August/September 2003

(pp. 330–355)

Measuring the acquisition of media-literacy skills

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Expanded conceptualizations of literacy have proliferated throughout the 1990s and into the new millennium. Many think the definition of literacy itself is in a heightened state of evolution, and work with visual media, interactive technologies, and the expressive arts is beginning to be seen in parallel with the skills of reading and writing (Tyner, 1998). Alphabetic literacy, while exceptionally valuable, is now recognized as one of the many competencies of representation needed for cultural success, as individuals routinely switch between speaking, listening, writing, reading, viewing, and producing symbolic forms to share meanings (Graff, 1995; Hobbs, 1994). According to Eisner (1999),

> [e]ach of the forms of representation that exist in our culture—visual forms in art, auditory forms in music, quantitative forms in mathematics, propositional forms in science, choreographic forms in dance, poetic forms in language—are vehicles through which meaning is conceptualized and expressed. (p. 1)

Support for expanding the concept of literacy is articulated by those interested in making classrooms sites for authentic learning in student-centered environments (Luke, 1997; Masterman, 1985) as well as those who see the value of recognizing reading and writing as practices that are socially and culturally constructed (Alvermann & Hagood, 2000; Buckingham, 1998; Nixon & Comber, 2001). Scholars who situate literacy within the contexts of culture and child development argue that the range and diversity of "texts" used in the classroom must be expanded to include artifacts of popular culture. These scholars identify a range of potential outcomes, such as the following: (a) to increase learning by making the practices of literacy relevant to students' home cultures and ways of knowing (Bazalgette, Bevort, & Savino, 1992; Ellsworth, 1997); (b) to accommodate diverse learning styles and meet the needs of multicultural learners (Cortes, 2000; Semali, 2000; Tobin, 2000); and (c) to develop creativity, self-expression, teamwork, and workplace skills (Brunner & Tally, 1999; Considine & Haley, 1999; Masterman, 1985).

Measuring the acquisition of media literacy skills

Students who participated in a required yearlong Grade 11 English media/communication course that incorporated extensive critical media analysis of print, audio, and visual texts were compared with students from a demographically matched group who received no instruction in critically analyzing media messages. A nonequivalent group's design examined students' reading comprehension, writing skills, critical reading, critical listening, and critical viewing skills for nonfiction informational messages. Results suggest that media literacy instruction improves students' ability to identify main ideas in written, audio, and visual media. Statistically significant differences were also found for writing quantity and quality. Specific text analysis skills also improved, including the ability to identify the purpose, target audience, point of view, construction techniques used in media messages, and the ability to identify omitted information from a news media broadcast in written, audio, or visual formats.

Midiendo la adquisición de habilidades de alfabetización a través de los medios

Un grupo de once estudiantes participó en un curso anual de grado 11 sobre medios y comunicación en inglés, que incorporó un extenso análisis crítico de los medios en textos impresos y audiovisuales. Este grupo se comparó con un grupo demográficamente similar que no recibió instrucción en análisis crítico de los medios. Mediante un diseño de grupos no-equivalentes se examinaron la comprensión lectora, las habilidades de escritura, la lectura crítica, la audición crítica y las habilidades de observación crítica de mensajes informativos no de ficción. Los resultados sugieren que la instrucción en análisis crítico de los medios mejora la habilidad de los estudiantes para identificar ideas principales en medios impresos o audiovisuales. Se hallaron también diferencias estadísticamente significativas en la cantidad y calidad de la producción escrita. Asismismo mejoraron las habilidades específicas de análisis textual, incluida la habilidad para identificar el propósito, la audiencia, el punto de vista, las técnicas de construcción usadas en los mensajes de los medios y la habilidad para detectar información omitida en una transmisión de noticias en formato escrito o audiovisual.

Messen des Erwerbs von Media Schreib- und Lese-Erkenntnissen

Elfte Klasse Schüler, die an einem einjährigen Pflichtfach in Media-Englisch/Kommunikation der 11. Klasse teilnahmen, welches ausführliche kritische Media-Analyse von Druck, Audio und visuellen Texten einschloß, wurden mit Schülern einer demografisch ebenbürtigen Gruppe verglichen, die keine Anweisungen zum kritischen Analysieren von Mediamitteilungen erhielten. Ein nicht equivalenter Gruppenraster untersuchte Leseverständnis, Schreibbefähigung, kritisches Lesen, kritisches Zuhören, und Fähigkeiten kritischer Meinungsäußerung bei Informationen von Tatsachenberichten. Die Ergebnisse lassen darauf schließen, daß Medienunterricht im Schreiben und Lesen die Fähigkeit der Schüler zum Erkennen wesentlicher Ideen der schriftlichen, audio- und visuellen Medien verbessert. Ebenfalls fanden sich statistisch bedeutende Unterschiede beim quantitativen und qualitativen Niederschreiben. Bestimmte Textanalysefähigkeiten verbesserten sich gleichzeitig, einschließlich der Fähigkeit aus den genutzten Mediamitteilungen Zweck, Zielzuhörerschaft, Standpunkt, Satz-/Sprachkonstruktionstechniken zu identifizieren, und die Fähigkeit, unterdrückte Informationen beim Ausstrahlen von Nachrichtenmedia in schriftlichen, audio oder visuellen Formaten zu identifizieren.

Mesurer l'acquisition des compétences en littératie des médias

On a comparé des élèves de Terminale qui avaient participé à un cours d'un an sur la Communication et les médias en anglais, cours qui comportait une analyse critique développée des médias écrits, audios et vidéos, à des élèves d'un groupe apparié sur le plan sociologique et qui n'avait pas reçu d'enseignement relatif à l'analyse critique des messages délivrés par les médias. Un plan pour groupes non équivalents a permis d'examiner la compréhension en lecture des élèves, les compétences en écriture, lecture critique, écoute et visionnement critiques de messages informatifs non-fictionnels. Les résultats suggèrent qu'un enseignement de la littératie des médias développe la capacité des élèves à identifier les idées principales dans les médias écrits, audios et vidéos. On a aussi trouvé des différences significativesdans l'écriture en quantité et en qualité. Ont été également développées des compétences spécifiques à l'analyse des textes, notamment la capacité à identifier le but, le public visé, le point de vue, les techniques de construction utilisées dans les messages des médias et la capacité à identifier une information omise par une chaîne, qu'elle soit écrite, audio ou vidéo.

While such approaches to literacy appear to threaten the central position of print literacy in K–12 education, some literacy educators see much to gain in rejecting the rigid hierarchies that position the printed word as the exclusive form for the representation of knowledge and expression in the classroom. In a review of the field of teaching literacy through the visual and communicative arts, Flood, Heath, and Lapp (1997) emphasized that society now demands the ability to engage in the meaning-making process from increasingly complex and layered combinations of messages that use video, audio, and print representations. They also pointed out that visual and communication arts develop students' skills of self-presentation, empathy-building, collaborative learning, and the ability to focus on several things at once, in addition to the motivational benefits stemming from classroom activities that incorporate the visual and electronic media arts.

While visual and electronic messages are now central aspects of contemporary culture, they are still often ignored or treated superficially in the classroom. Why? There are a number of reasons worth examining. First, literacy educators have long elevated one form of literacy over others, as Goody and Watt (1988) noted about the long-subordinated position of speaking and listening within the curriculum. Second, Flood et al. (1997) stated that teachers' "irrational loyalty to reading and writing" (p. xvi) may come from their fears that children's media use displaces their use of print, a fear that is not well supported in a comprehensive review of 30 years of research evidence (Neuman, 1995). There is a third reason why teachers are suspicious of expanding conceptualizations of literacy. Some pervasive misuses of television and video technologies in the classroom (when used as substitute teaching, to fill time, to reward good behavior, or without clear connection to the curriculum) are long-standing practices in K–12 classrooms (Hobbs, 1994; Moody, 1999). The normalization of such practices in some schools may create a negative incentive, discouraging rigorous curriculum-based experimentation with creative instructional approaches using television and video (Lusted, 1991). Finally, the film studies approach used in teaching film as literature, which is now more common in secondary English language arts, may inculcate the view that such work is not for the generalist teacher and requires specialist training, further depressing interest levels among regular classroom teachers (Film Education Working Group, 1999; Lusted, 1991).

In general, including visual and electronic media within the sphere of literacy increases the complexity of how to think about literacy in an information age, especially because a range of different academic fields are contributing to these initiatives from their separate disciplinary traditions. In an era of information overload, these new ideas provide "enough background static to make the task of unifying the field all the more cumbersome" (Tyner, 1998, p. 67), creating a laundry list of concepts and approaches in English language arts that have become unwieldy for educators in the classroom.

In *The Rise and Fall of English*, Robert Scholes (1998) recognized this problem and recommended a major overhaul in the teaching of English by replacing the canon of literary texts with a canon of concepts, precepts, and practices for investigating the meaning-making process. He suggested that restoring the medieval trivium of grammar, dialectic, and rhetoric as the center posts in English education will help students "situate themselves in their own culture...and make the basic processes of language itself intelligible and fully available for use" (p. 119). Scholes urged that English language arts education incorporate a wide range of "texts" including film, television, advertising, the Internet, and popular media. Aligned with this suggestion, Alvermann, Moon, and Hagood (1999) emphasized the development of students' critical thinking skills by guiding students through a process of learning how to question their own pleasures in reading, viewing, and listening.

Such approaches may enhance the acquisition of print literacy skills. For example, Neuman (1995) pointed out that some of the cognitive skills involved in reading, including inference making and visualization, may be enhanced by opportunities for explicit, metacognitive practice with the use of video, film, or other nonprint media. An increasing number of curriculum materials for middle school students are specifically designed to strengthen reading comprehension skills with the use of media-literacy activities (Center for Media Literacy, 2001). Activities that employ media-analysis skills in the context of language arts instruction may help students internalize analytic concepts for improving reading comprehension. For example, analyzing the setting, speech, thoughts, and dialogue in a film scene may help students understand, identify, and evaluate those elements of character development in literature. Particularly for struggling or reluctant readers, opportunities to analyze media texts may help internalize understanding of concepts like genre, point of view, and tone; such work may improve visualization and inference-making skills needed for skillful reading (Hobbs, 2001). Along with a small but growing number of literacy educators, both Neuman and

Hobbs argued that synergistic approaches that use both print and nonprint communication forms in the classroom must replace competition between them as literacy educators begin to explore new ways of using the expanded multimedia environment to enrich the lives of children and youth.

Current approaches to media-literacy education

Media literacy, defined generally as "the ability to access, analyze, evaluate and communicate messages in a wide variety of forms" (Aufderheide & Firestone, 1993), emphasizes the skills of analyzing, evaluating, and creating media and technology messages that make use of language, moving images, music, sound effects, and other techniques (Masterman, 1985; Messaris, 1994). In assessing the growth of multiliteracies, Tyner (1998) distinguished between those that emphasize tool use (technology literacy, computer literacy, network literacy) and those that are essentially literacies of representation (information literacy, visual literacy, and media literacy). Of the latter three, media literacy has the most established conceptual base as a result of years of international practice in formal educational settings.

Drawing upon a 25-year tradition in the United Kingdom, Canada, and Australia (for review see Alvarado & Boyd-Barrett, 1992), there has been substantial progress in the United States as a coalition of educators has formed a national association and held annual conferences (Rogow, 2001). There has been increasing momentum to include media-literacy skills within state curriculum frameworks. For example, Texas has expanded the number of language arts to six—viewing and representing have been added to reading, writing, speaking, and listening—with specific outcome expectations in English language arts for grades 4–12 (Texas Education Agency, 1998). More than 40 states including Massachusetts, North Carolina, and New Mexico have identified media-literacy skills within language arts, social studies, fine and performing arts, library-information skills, or health education curricula (Kubey & Baker, 1999).

While scholars have pointed out the fragmented nature of the concept of media literacy, with a number of ongoing debates about the practices, pedagogies, and politics embedded in it (Hobbs, 1998), an approach that emphasizes constructivist, interdisciplinary, collaborative, nonhierarchical, and inquiry-based processes of learning is emerging as a dominant paradigm (Alvermann et al., 1999; Bazalgette, 1993; Brunner & Tally, 1999; Considine & Haley, 1999; Film Education Working Group, 1999; Giroux & Simon, 1989; Hobbs, 1996; Masterman, 1985; Watts Pailliotet & Mosenthal, 2000). As students practice questioning media and other information, they may begin a process of internal questioning every time they encounter media messages, without prompting from the teacher. According to Tyner (1998), "[i]t is the hope of critical pedagogists that this habit...will create critically autonomous citizens, who question information and authority as a matter of course" (p. 199).

Media literacy in K–12 environments generally features activities that invite students to reflect on and analyze their own media consumption habits (Anderson, 1983; Brown, 1991; Kubey & Baker, 1999); to identify author, purpose, and point of view in films, commercials, television and radio programs, magazine and newspaper editorials (Considine & Haley, 1999; Hobbs, 1999); to identify the range of production techniques that are used to communicate point of view and shape audience response (Brunner & Tally, 1999; Film Education Working Group, 1999; Messaris, 1994); and to identify and evaluate the quality of media's representation of the world by examining patterns of representation, stereotyping, emphasis, and omission in print and television news and other media (Alvermann & Hagood, 2000; Alvermann et al., 1999; Sholle & Denski, 1994; Tyner, 1998). Other media-literacy activities often include an appreciation of the basic economic underpinnings of mass media industries, as well as engender familiarity and experience in using mass media tools for personal expression and communication and for purposes of social and political advocacy (Hobbs, 1994; Prinsloo & Criticos, 1991). These skills and activities may have an impact on students' motivation to develop more sophisticated reading, writing, and analysis skills (Kubey, 1998).

There is a small body of research that explores the impact of media-literacy instruction on the cognitive skills, attitudes, and behaviors of young people. A history of the first phase of implementing critical-viewing skills instruction in the 1980s revealed that most evaluation models examined the program outcomes on very small numbers of students, usually a single classroom, often in interventions designed and implemented by researchers (Anderson, 1983). Studies have examined whether a brief, six-hour exposure to media-literacy education affected children's ability to distinguish between the real and fictional elements of a program (Dorr, Graves, & Phelps, 1980); whether a three-hour-a-

week curriculum for elementary school students helped students identify genre and syntactical structure (Anderson, 1983); and whether an eight-session course on media literacy improved knowledge of camera and editing production techniques and the economics of media production (Singer, Zuckerman, & Singer, 1980). More recently, studies have explored whether students learned the facts, vocabulary, and information provided as part of the instruction (Baron, 1985; Kelley, Gunter, & Kelley, 1985) or whether a video broadcast about media literacy affected cognitive or critical-analysis skills (Vooijs & Van der Voort, 1993). Health researchers have examined the effect of media-literacy instruction on elementary school students' attitudes about alcohol (Austin & Johnson, 1997; Goldberg & Bechtel, n.d.). In addition, case studies from a number of countries have documented teachers' instructional strategies in implementing media literacy in classrooms (Alvermann et al., 1999; Hart, 1997; Michie, 1999).

Studies using group designs remain the primary means for assessing whether educational interventions have beneficial effects on students. Although qualitative studies can provide valuable insights on the process of change and enhance understanding of facets of teaching and learning (Babbie, 1998), experimental or nonexperimental group designs remain a standard used by external audiences in assessing the effectiveness of a novel intervention (Cook & Campbell, 1979). Little school-based empirical research has been conducted to demonstrate the impact of media-literacy curriculum on students' attitudes, behavior, knowledge, and academic performance. In the first quantitative measurement of media-literacy skills, Quin and McMahon (1995) conducted research on a sample of 1,500 students in Western Australia. They created an evaluation instrument that provided students with a specific visual media message, with multiple-choice and open-ended questions in a paper-and-pencil assessment. Students identified the message's purpose, target audience, point of view, and qualities of representation. In the United States, Hobbs and Frost (1999) measured ninth-grade students' media-analysis skills in four different classroom contexts, using a measurement approach adapted from the work of Quin and McMahon. Students answered multiple-choice and open-ended questions about a television news segment and identified the target audience, the design qualities that attracted audience attention, the points of view expressed, similarities and differences to other messages within the genre, and what information was omitted. After 12 weeks of instruction, findings showed that students whose teachers integrated media-literacy concepts and activities with existing curriculum outperformed those in other classes whose teachers used "off the shelf" curriculum. As yet, research has not examined the impact of media literacy on the development of reading comprehension and writing skills. The present study was designed to evaluate the impact of a secondary language arts curriculum, which was developed in one school district, to determine its effects on students' reading, listening and viewing comprehension, writing, and skills of message analysis.

Media literacy in English language arts: One school's approach

Concord High School is one of a small number of high schools in the United States to fully integrate media literacy for all its students. During the spring of 1998, the school board approved a plan to reorganize the high school English language arts curriculum to include a full yearlong curriculum in media/communications for all grade 11 students. The initiative was developed by a team of English teachers who reviewed the high school curriculum after a school building project had led to the expansion of the school to include grade 9 students, who were for many years enrolled in the district's middle schools. For faculty in the English program, anticipating the arrival of grade 9 students provided the opportunity to step back and reflect on the overall secondary curriculum in English language arts. "When we looked at the curriculum, we thought we were doing a good job preparing students to be English majors in college," said Elizabeth York, English department coordinator.

> We needed to do more to prepare all our students, not just the few who wanted to be English majors. What we needed to do is help students to be skillful in all the messages that they are surrounded with every day of their lives. To prepare them for life means more attention to nonfiction, more attention to media messages and diverse forms of communication.

According to Bob Cowan, veteran Concord High School English teacher, "We designed a yearlong program in media/communications that emphasizes the analysis of media messages and examines some broader social and cultural issues about the role of the media in society and for the lives of individuals." The faculty decided to restructure the scope and

sequence for secondary English language arts. The new sequence includes grade 9 American literature; grade 10 world literature; grade 11 media/communications; and grade 12 English electives, including poetry, creative writing, Shakespeare, media production, and others. From the perspective of the faculty, this approach would be the best fit for their students because it aligned closely with the program of studies for history and social studies and would take advantage of interdisciplinary and cross-curricular opportunities that were valued by the faculty and students.

Seven teachers collaborated to construct the curriculum, which involved students analyzing classic and contemporary literature as well as television shows, print and television journalism, films, advertising, political speeches, and business and interpersonal communications (York & Aubry, 1999). Faculty members who were selected to participate in the new course (based on interest and scheduling availability) had a mix of classroom experience. Two teachers were veterans with over 30 years of teaching, two others were midcareer teachers, two had been teaching for less than 10 years, and one was a teacher in her first year of teaching. Grade 11 teachers included four white women and three white men, and while the school's principal described the team as "strong" he also made it clear that there were a number of exceptional faculty in the English department who were not teaching the grade 11 media/communications course. None of the teachers had an advanced degree in media studies, although one teacher had a doctorate in education. Their attitudes about the media were substantially diverse, with one teacher a self-described "news media junkie," another with only one little-used television in his home, and another with a particular interest in mass communication theories of media influence. Two of the seven teachers did not enjoy teaching this course and switched to teach other grade levels in the subsequent school year. (Analysis of teacher attitudes and behavior during the program implementation and the impact of attitudes on curriculum implementation is under preparation by the first author.)

It is important to note that the Concord High School English language arts faculty has a strong belief in and respect for the benefits of heterogeneous grouping. While other academic programs at the high school are tracked, the English faculty has been consistently firm in maintaining heterogeneous grouping, despite some informal pressure from parents and faculty colleagues. The faculty believed that the grade 11 course in media/communications would further help build opportunities for peer-to-peer learning experiences that benefit all students.

The seven teachers selected six well-known works of literature and nonfiction that they would use in common. They shared some videotapes and used some common writing and other activities, which were stored on a fileserver in the faculty workroom. Faculty members shared their assignments formally via a binder of materials maintained in the workroom as well as through informal dialogue in weekly staff meetings.

In order to prepare for teaching the new course, three members of the grade 11 team attended a 1998 conference at Clark University in Worcester, Massachusetts, entitled Teaching the Humanities in a Media Age. Organized as a national teacher education institute for educators, this staff development program, funded by a grant from the Arthur Vining Davis Foundations and ATT Foundation, involved teachers from four school districts: Atlanta, Georgia; Los Angeles, California; St. Paul/Minneapolis, Minnesota; and Worcester, Massachusetts (Hobbs, 1999). The first author of the study had contact with three Concord teachers only during this weeklong staff development experience and did not play a role in the development of the curriculum content or instructional processes.

Grade 11 teachers did adopt the five framing questions, presented at the Clark staff development program, that they believed would help to unify their curriculum: Who is sending this message and what is the author's purpose? What techniques are used to attract and hold attention? What lifestyles, values, and points of view are represented in this message? How might different people interpret this message differently? What is omitted from this message? Critical questions like these have been effective in introducing and sustaining reflective practice and metacognitive skills among students and teachers, as described by Deborah Meier (1996), founder of the Central Park East complex of schools in New York City. While teachers did share materials and resources with others, each teacher designed and used various units of instruction according to his or her individual perspective. All included the formal study of four key areas: (a) advertising, persuasion, and propaganda; (b) the analysis and construction of news and nonfiction; (c) approaches to storytelling in dramatic fiction; and (d) the representation of gender, race, and ideology in media messages (York & Aubry, 1999). Because of the need to share books, each teacher taught using these materials at different times and in different sequential order during the school year.

The school principal and the district's school board had approved the new program with only one caveat—that the program be academically rigorous. According to principal Tim Meyer,

> The one concern that was raised was the concern that the program maintain high expectations for the development of students' critical thinking, writing, reading, and analysis skills. [The school board members said], "Don't lose the emphasis on some of the basic skills that kids need—reading, writing, interpreting literature."

As mentioned earlier, although the faculty members had interests in media/communications, none possessed any particular disciplinary expertise in media studies. They were most comfortable in analyzing literature and strengthening students' writing and reading skills; interviews showed that teachers were moderately confident that the new course would build bridges between media study and literary understandings of the meaning-making process and would be as academically rigorous as other courses in the secondary English language arts curriculum.

As a result, classroom activities ranged widely during the course of the school year, from traditional literature-based language arts to activities more focused on specific media forms. Teachers made an effort to make a media/communications connection when they were doing more traditional reading, literary analysis, and writing activities. For example, students analyzed point of view in Ken Kesey's 1960s book *One Flew Over the Cuckoo's Nest* (2003, Penguin USA), examining how the book and the film use different strategies to tell the story through manipulating point of view. After reading Mary Shelley's *Frankenstein*, students examined the different depictions of the birth of the monster in the many different film versions, from the 1930s to the present time. When they read Aldous Huxley's *Brave New World*, they discussed similarities and differences between the futuristic visions of Huxley, those of George Orwell, and trends in contemporary society.

Teachers also designed specific units of instruction on the representation of men and women in the media and the power of advertising. In some classes, students traced patterns in the evolution of families on television, looking critically at the representation of men, women, and children in situation comedies of different eras. Other students examined changes in talk shows on television and the patterns of gender stereotyping in television programming. Some learned about the economics of media by studying the history of children's television. With advertising, students analyzed the techniques and approaches used in print and television. Writing assignments encouraged students to examine ads and describe target audiences, recognize the use of emotional appeals, and notice how graphic design elements were used to compel viewer attention. Some students visited an advertising agency and interviewed key staff members. Others taught a mini-unit on advertising to younger children, created ad parodies, or constructed consumer awareness campaigns using fliers, radio advertising, and print media (York & Aubry, 1999).

In studying nonfiction media and journalism, students analyzed newscasts, including local, national, and newsmagazine broadcasts. They wrote news stories. The five critical questions were used routinely in instruction to help students internalize metacognitive strategies to assess audience, purpose, and point of view. Assignments asked students to critically review newspapers and websites, comparing coverage of an event or individual across multiple sources. Numerous and regular assignments with the local daily newspaper, the Concord *Monitor*, involved the analysis of word choice, images, sequence of information, content emphasis and omission, and patterns in racial and gender representation. Students explored the ways in which narrative elements are used to attract and hold attention in nonfiction messages by writing nonfiction themselves.

Teachers used a variety of instructional methods to scaffold students' learning, including viewing and discussing, paired reading, journal writing, question sharing, and other methods to promote rich discussion in the classroom. There were numerous writing assignments throughout the year. Challenging assignments offered advanced students special opportunities to extend the learning experience through additional reading, writing, and media production activities.

It is not surprising that teachers were least comfortable with exploring the following media genres that were most central in the lives of their students: popular music, current films, video games, the Internet, and sports. Some teachers created more modest learning experiences to explore these forms, however. But occasionally teachers struggled with personal tensions—wanting to use texts with the currency of contemporary media yet torn by some residual feelings about the need to protect students from inappropriate messages, particularly when the Bill Clinton-Monica Lewinsky scandal was breaking in Washington. As one teacher said, "I'm struggling with how much lurid material we have to look at. Do we have to look at it to talk about it? I want to find some other little more safe terrain. That's the conventional side of me."

In the program's first year of implementation, there was less emphasis on media production in this curriculum than might have been desirable. Students did create their own advertising messages, take photos, write headlines and cutlines, and create graphic displays. Some teachers had students use publication and presentation software to create messages. Other students used their home video equipment to complete assignments that could be submitted in audiovisual form. However, the bulk of students' work was submitted in written form. Why wasn't media production more central to the instructional program? First, teachers did not have much experience in designing and managing whole-class media production activities, which can present organizational challenges even to experienced teachers (Film Education Working Group, 1999; Lusted, 1991; Masterman, 1985). Second, there was a grade 12 elective in media production already available to students with special interests in this, so that in comparison to other activities, some teachers didn't feel it was worthwhile to spend four weeks on a media production activity, especially given their own inexperience in media production. "There's too much that can go wrong," noted one teacher. "Next year when I've got more familiarity with this stuff, I'll try it." Teachers felt limited by their own experience with visual media as well as the challenges of designing and implementing a new set of materials from scratch. For many teachers, media production was considered too big a challenge for the first year's implementation.

In characterizing the first year's curriculum, it is clear that teachers used a mixture of more familiar and less familiar topics based on their experience and background. Teachers were most comfortable with tasks involving "reading" a text, interpreting it, discussing it, and responding via a written critical analysis. Their priorities were evident in the emphasis placed on the four focus areas. They were most concerned about their students' ability to analyze advertising, to understand how point of view was expressed in various kinds of news and nonfiction texts, to appreciate the diverse array of narrative structures in storytelling, and to examine the representation of gender, race, and ideology in media messages.

Research hypotheses

The faculty for the grade 11 English curriculum in media/communications at Concord High School emphasized the development of students' reading and writing skills as well as students' ability to critically analyze media messages. As a result, three hypotheses were put forward to measure the effectiveness of the curriculum on the development of students' academic skills. These were generated in collaboration with the grade 11 teachers involved in the implementation of the curriculum, who were interviewed at the beginning of the school year about their expectations for how the yearlong program would affect student skills, behaviors, and knowledge. In order to measure student skill development with more precision, we distinguish between skills that demonstrate comprehension, those that demonstrate writing skills, and those that demonstrate skills of message analysis, even though researchers have long recognized the interconnectedness between these skills (Langer, 1995). The present study was designed to evaluate the impact of a secondary language arts curriculum, which was developed in one school district, by determining its effects on students' reading, listening and viewing comprehension, writing, and message-analysis skills. The following were stated as null hypotheses:

H1. Media-literacy instruction does not increase students' comprehension skills, as operationalized by the ability to identify the main idea of messages and to recall specific details from three formats of nonfiction—print, audio, and video.

H2. Media-literacy instruction does not increase students' writing skills, as operationalized by assessments of writing quality and quantity, spelling, and usage errors.

H3. Media-literacy instruction does not increase message-analysis skills involving reading; listening; and viewing media messages in print, audio, and video forms. Analysis skills are operationalized as the following: the ability to identify a message's purpose and target audience, identification of techniques used to construct the message, identification of values and point of view, identification of information omitted from a message, and comparison-contrast between messages using similar formats.

These hypotheses reflect teachers' understandings of their work not as media teachers, but as English teachers. Although the English 11 curriculum emphasized the analysis of media texts, the teachers' instructional priorities, as reflected in the classroom activities and assignments, emphasized the development of skills of meaning making, interpretation, analysis, and composition. As a result, teachers put a high value on helping students strengthen their writing and reading skills, even though the course used texts that included not only works of literature but also nonfiction, film, television, advertising, and popular culture.

Research design

Because all students in the school district participated in the instructional program at Concord High School, it was necessary to use a nonequivalent groups design in order to quantitatively measure the impact of this instructional treatment on student learning. While such designs are common in evaluation research (Babbie, 1998), they have been critiqued both by advocates of single-subject research and by advocates of qualitative research, who point out the limitations of the method (Kennedy, 1997; Richardson, 1994). However, nonequivalent research designs are still a powerful tool for understanding the effectiveness and impact of new instructional interventions (Cook & Campbell, 1979; Gersten, Baker, & Lloyd, 2000). In true experiments, participants are randomly assigned to treatment conditions. In quasi-experiments, researchers often use students from intact classes or schools as the treatment sample and try to find a relatively comparable group of students from other classes or schools to serve as the comparison sample. Since randomized assignment to treatment groups was impossible because the entire population of the school was implementing the media/communications curriculum, a comparison sample was used from another community with similar instructional quality, school size, and student demographics. Even when control and experimental groups are matched along key demographic variables and other criteria, selection bias remains a threat to internal validity, which limits the generalizability of the results. However, the primary advantage of this design is that it allows researchers to eliminate maturation effects, thus distinguishing between effects of the instruction and those of natural developmental maturation and growth.

In the most frequently used type of quasi-experiment, researchers typically assess students on a battery of pretest measures to ensure equivalence. Quasi-experimental designs are strengthened when researchers can prove that the groups were highly similar at pretest time. Specialists in educational measurement recommend a difference no greater than 0.25 standard deviation between the experimental and comparison groups on pretest variables, a criterion that this research employs (National Center to Improve the Tools of Educators, 1998). Because of the inherent limitations of the design, a quasi-experiment will never be an ideal substitute for a true experiment, regardless of how well it is planned and conducted and no matter what the results are. However, because quasi-experiments are a way of life for many researchers in the field of education, the results of well-conducted quasi-experiments are a valuable contribution to research, especially when used for exploratory research or to evaluate instructional innovations under circumstances when experimental designs are impossible to employ (Cook & Campbell, 1979).

Sample

Demographic comparison of the two communities shows a pattern of similarities and differences in size, racial, gender, and social class variables. Data were gathered on the entire population of 293 students at Concord High School enrolled in grade 11 and on a random sample of 89 students from a control school, located within a 50-mile radius of the treatment school. Concord and the control community each have a population of approximately 7,000 families, 97% white. Concord's per capita income is slightly lower (at US$23,262) than the control community (at US$24,367) because Concord has a greater number of elderly citizens. Students in both samples had a balanced proportion of males and females, and both groups matched the racial composition of the communities.

A comparison of parental occupations revealed parity between the two communities. We asked students to write down parental occupations as an indirect measure of socioeconomic status and then coded these using categories identified by the U.S. Department of Commerce. For example, 27% of treatment-group fathers and 23% of control-group fathers are identified as book and business knowledge intensive (includes managerial, finance, legal, government); 18% of treatment-group and 22% of control-group fathers are identified with science and technology intensive jobs (includes computers, engineering); 24% of both treatment-group and control-group fathers are identified with hands-on work (includes military, construction, installation, maintenance); and 18% of treatment-group fathers and 15% of control-group fathers are identified with work that is communication intensive (includes community and social services, education, and management). Because of the parallel proportions of mothers and fathers involved in hands-on work, service occupations, and knowledge professions, these data enhance our confidence that the samples, while drawn from two different communities, are similar along key dimensions of social class.

Media-use data also reveal that some differences are evident between the control group and treatment group. While a greater proportion of control-group students have a computer in the home

(96% as compared with 90% of the treatment group), $F(1, 726) = 7.51$, $p < .001$, other media-use indicators show no significant differences between the control and the treatment group in the number of televisions, number of videocassette recorders, cable television access, and newspaper subscriptions. Family size suggests that the students receiving media-literacy instruction may have a slightly higher proportion of smaller, possibly single-family, households since the data show fewer siblings in the treatment group (1.8 for the control group and 1.7 for the treatment group) but statistically significant differences in household size in the treatment group (control group $M = 4.2$, treatment group $M = 4.0$), $F(1, 726) = 6.82$, $p < .01$. These differences show that the control-group students are slightly more advantaged in terms of access to technology and household size.

The control school was also selected because of its similarities in terms of the overall instructional program and the quality of the program in English language arts. The principal of Concord High School was previously an administrative leader at the control-group school and recommended the school's participation in the research because of perceived similarities in the quality of the faculty, parental backgrounds, funding priorities in the district, and the overall administration of the school. Like the treatment group, the English language arts faculty at the control school favored heterogeneous grouping and had an outstanding reputation in the state for excellence in achievement. The control school's English 11 curriculum emphasized world literature, and, like the Concord teachers, the control-school faculty valued a process approach to writing, emphasis on critical thinking, rich discussion, and collaborative learning. Expectations for student learning were high, according to the head of the English department. During the testing year, faculty members at the control site were excited to be involved in pilot testing a new program of portfolio-based assessment. According to the curriculum coordinator for the school, there was significant enthusiasm for this new evaluation approach, which the faculty had long promoted. Differences in teacher enthusiasm can confound results of quasi-experimental designs (Scruggs & Mastropieri, 1994), and, while this research did not formally measure teacher enthusiasm in either the treatment group or the control group, interviews with teachers from both sites gave us the indication that faculty members were equivalent in their engagement with students and level of morale.

Because data were collected from the entire population of grade 11 students at Concord High School, the treatment sample included all students enrolled in the regular and special education programs. Because courses of study at this school were heterogeneously grouped, the sample included students with learning disabilities, physical disabilities, and impaired hearing. Only students who completed the entire battery of identical pretest and posttest measures (administered in September as a pretest and in May as a posttest) were included in the study. Although we were unable to collect data from the entire population at the control school, we were able to use a random sample, which included students with learning disabilities, physical disabilities, and impaired hearing. A total of 89 students completed both pretest and posttest at the control school. Students in both the control and treatment samples were an average age of 17 years at the start of the testing, with a range of 16 to 18 years.

Research measures

This study measured students' comprehension and message-analysis skills in response to three nonfiction message formats: reading a print newsmagazine article, listening to a U.S. National Public Radio (NPR) audio news commentary, and viewing a television news segment targeted at teenagers. Comprehension skills were measured after exposure to each message through a paper-and-pencil response to open-ended questions. Writing skills were measured by coding a sample of open-ended response text for word count, holistic writing quality, and the number of spelling and usage errors. Analysis skills were measured after exposure to each message with use of paper-and-pencil measures with open-ended and checklist items to determine students' ability to identify purpose, target audience, construction techniques, values and point of view, omitted information, and comparison-contrast.

We adapted the procedure created by Quin and McMahon (1995), who tested the media-literacy skills of a large sample of Australian students to assess different skill levels in analyzing media. This procedure consisted of providing students with a brief nonfiction print, audio, video, or visual media message, and then a set of paper-and-pencil open-ended and checklist questions about the message to measure students' skills of message analysis. Following the work of Hobbs and Frost (1999), in adapting the instrument to be completed by students, we modified questions using the format of the five critical questions in order to better structure students' demonstration of analysis skills. Because of the focus on nonfiction media in the grade 11 course,

we felt it appropriate to select texts from newsmagazines, radio news programs, and television news. The appendix displays the questions used for the viewing comprehension activity.

Identical test administration procedures and measures were used for both pretest and posttest for the treatment and control groups. The use of a written protocol ensured standardized administration procedures for the testing. Students entered a study hall in groups of 30 to 50, accompanied by classroom teachers who stayed in the room throughout the administration of the measures. While the rooms were approximately the same size, the study hall room in the control school was carpeted, which may have improved the acoustic qualities for both the listening and viewing segments of the test administration. Students received code numbers on the first day of testing, and all data collected in this study kept students' names confidential. A female experimenter introduced the study, and each test was implemented individually and collected before the next test was administered. Students all received the critical-reading test at the beginning of the testing session. To control for order effects, groups received the other critical-analysis tasks in a rotated order; each was collected separately before administering the next. The administration of the tests took 90 minutes.

Decisions about scoring began after reviewing a sample of 40 student responses and reviewing the test responses supplied by the seven grade 11 treatment-group faculty members who also completed all tests. Researchers created a coding protocol by first identifying the range of possible written responses to each item. The coding protocol was a detailed written guide to assist scorers in identifying how to allocate points for student responses. Two advanced undergraduate students who served as peer writing coaches at their college's writing center read all student responses and conducted the scoring after a training process. The study's authors guided coders' decision making during the initial period of learning to use the scoring instrument. A random sample of tests revealed a Cronbach's alpha of interrater reliability ranging from .89 to .93 for items requiring the scoring of open-ended responses. Coders read and scored the data blind to control treatment condition.

Reading comprehension

While researchers have pointed out the variety of responses to requests to identify the main idea of a reading passage (Moore & Cunningham, 1986), skillful readers are able to distinguish between textually and contextually important information. Skillful readers recognize features of an informational text's structure to differentiate between more important and less important ideas (Vacca & Vacca, 1999). To measure reading comprehension of an informational text, students read a one-page article entitled "Mosquitoes Get Deadly" from the September 5, 1997, issue of *Time* magazine, which was reproduced as a black-and-white photocopy. The article concerns the rise in encephalitis cases as a result of infected mosquitoes in Florida. Two open-ended questions designed to measure reading comprehension asked students, after reading, to first "put the main idea of this magazine article into sentences." In responding to this question, they were invited to identify the "who, what, where, when, why, and how" structure to explain the story. For example, a student received 4 points for this answer:

> Scientists are worried about a possible outbreak of encephalits [sic], a deadly disease carried by mosquitoes in central Florida and Long Island, New York. In September 1997, scientists had located the virus in several counties and were encouraging citizens to take steps to prevent infections.

Points were given for identifying the mosquitoes as carriers of the disease, specifying the location, identifying the date, identifying the disease as deadly, and making reference to the need to take precautions. A student received 2 points for writing this:

> Mosquitoes are once again carrying encephalitis in states such as Florida, New York, Massachusetts, North Dakota and Georgia. For the first time since the outbreak in Florida in 1990.

A second item asked students to describe the most memorable specific detail included in the article. These responses were coded to capture the level of specificity, not the specific content, of students' writing. The ability to recall specific details from an informational text may be related to the interaction between readers' comprehension skills and their prior knowledge (Pressley, 1999). A student who wrote "In 1990, eleven people died from the disease" received 3 points, the highest score. A student who wrote "The last outbreak was in 1990" received 2 points, and a student who wrote "This happened in the United States" received 1 point. Incoherent or blank answers were coded as zero. By capturing the level of specificity of students' responses, this measure provides an indirect measure of the interaction between comprehension skills and prior knowledge.

Listening comprehension

Students heard a three-minute National Public Radio news story from the January 12, 1998,

broadcast of "All Things Considered." The program was about the decision by David Brinkley to become a spokesman for the agribusiness firm Archer Daniels Midland, "supermarket to the world." This piece, introduced by Bob Edwards and performed by Rem Ryder, was a news commentary and analysis with a clear opinion presented. It used audio excerpts from Brinkley's speeches and press releases to illustrate Brinkley's shift from respected news anchor to corporate pitchman. After listening, students were asked to "put the main idea of this broadcast into sentences" and identify the "who, what, where, when, why, and how" structure to explain the story. A second question asked students to "describe the most memorable specific detail" provided in the broadcast.

Viewing comprehension

Students viewed a five-minute news story from Channel One (a daily satellite news broadcast, provided by Primedia Inc.). The original TV broadcast was in April of 1994, and it is about the devastating effects caused by Hurricane Andrew. We selected this piece because we wanted to ensure that the news content would be unfamiliar to students (neither the control group nor the treatment group received Channel One). This video segment was identical to the one used in Hobbs and Frost's (1999) study of the media-analysis skills of ninth graders. Two open-ended questions designed to measure viewing comprehension used language identical to the reading and listening comprehension measures described earlier.

Writing skills

We scored student writing by using two paragraphs of response text, which students composed in response to the open-ended reading, listening, and viewing comprehension questions. Writing was scored with a holistic writing scale, a term used for tests that measure writing quality wholly through the production of writing (Cooper & Odell, 1977). The holistic writing scoring system used a 5-point scale that includes consideration of clarity, coherence, and sentence structure. In addition, scorers counted paragraph length in number of words and coded the number of spelling and grammatical (not punctuation) errors.

Analysis: Identification of construction techniques

Students were asked this open-ended question: "What techniques were used to attract and hold attention?" The ability to recognize and describe the constructedness of media messages is acknowledged as one of the central principles of media-literacy education (Aufderheide & Firestone, 1993) and is a key feature of literary analysis in secondary English language arts (Langer, 1995). After reading a sample of student responses, we developed a protocol as described earlier to code student responses on a 3-point scale. Coders were provided with a list of acceptable answers and coded for the presence of these items. For example, in responding to the *Time* magazine article, a student received 3 points for writing "Using scary headline with the word 'DEADLY,' showing a large picture of a mosquito with a ketchy [sic] subtitle explanation." A student received 1 point for writing "Used facts to scare you." Additional answers identified the use of statistics, the use of humor, a reference to Disneyworld attendees who were affected to create increased identification for readers, the use of the "arms race" metaphor in describing the growth in infected mosquitoes, or the punchy ending that used surprising facts.

In responding to the television news segment, coders awarded points for answers that included reference to specific use of language, imagery, sound, production values, camera movement, voice quality, editing, graphs, informative content, or the use of emotional appeals. For example, a student received 3 points for writing "The music and the flashing pictures in the beginning of the broadcast kept your attention. Watching different shots of the hurricane and how some people reacted also captured my emotions." A student who wrote "The upbeat music was dramatic and powerful" received 1 point. A student who wrote "Shock" received no points.

Analysis: Identification of point of view

Students were asked this open-ended question: "What values or points of view were represented in this message?" While understanding point of view crosses all curriculum areas, instructors in English language arts have explored this concept through the use of a variety of pedagogical strategies (Bean, Valerio, & Stevens, 1999; Scholes, 1998; Vacca & Vacca, 1999). After reviewing a sample of 40 student responses, reviewing answers supplied by faculty, and creating a written coding protocol, we coded responses by allocating points for the specific identification of points of view. For example, a student who wrote "People must protect themselves by being more careful about spending time outdoors after dark" received 3 points, the highest score for this item. Another who wrote "This article emphasizes

the value of human life and our need to safeguard it" also received 3 points. A student who wrote "The doctor's point of view" received 2 points, and another student who wrote "Mosquitoes should be killed" received 1 point.

In assessing the point of view after responding to the television news viewing segment, a student received 3 points, the highest score, for identifying the point of view of the segment by writing this response: "Much of the story was given from the point of view of young people who were affected by the storm." Another student received only 1 point for writing "Hurricanes are destructive, dangerous and unpredictable."

Analysis: Identification of omissions

This question asked students after reading, listening, or viewing to "identify three relevant questions, facts, or pieces of information that were omitted from the message." Recognizing omissions has been seen as a vital dimension for identifying point of view in an informational text (Kovach & Rosenstiel, 2001). It is equally important that this question indirectly measures a dimension of strategic, higher order comprehension, because in identifying omitted information students must be able to generate new ideas connected to the topic. Pressley (1999) described how readers with good comprehension skills are strategic as they read, using prior knowledge, monitoring their comprehension, making predictions, and actively asking questions. Coders evaluated student responses on a 3-point scale, and silly, incoherent, or redundant questions, facts, or information received no points. For example, a student received 2 points for writing "What were the ages of the people who were killed? How to protect pets? What kind of people were most at risk?" Even though the student identified three questions, her first question was determined to have made her third question redundant, and she was not awarded an additional point. A student who included "What do you do if symptoms appear?" would not receive credit for that question because it was specifically addressed in the article.

Analysis: Comparison-contrast

After viewing the television news segment, students were asked to compare and contrast the video to other types of news programs, including local and national television news. Comparison-contrast is a fundamental strategy to promote critical thinking and is a routine component of instruction across the subject areas (Vacca & Vacca, 1999). Students were asked to "List three ways that this news story was similar to and different from local or national television news." Space was provided to list similarities separately from differences, and responses were coded on a 3-point scale after the development of a written protocol as described above. Similarities included the use of interviews, maps and graphs, anchor people addressing the viewer directly, taped footage from on location, voice-over explaining visuals, rapid editing, and dramatic statistics. Differences included the use of dramatic music, a wider variety of ethnic groups represented, teenagers as anchors, teens and young people interviewed on camera, rapid editing, and more depth of detail.

Analysis: Identification of purpose and target audience

The measurement of students' analysis skills was designed on the model of the five critical questions. For each of the three different formats of media messages, students completed the following analysis questions immediately after responding to the comprehension questions. For each of the three types of messages, students were first asked to identify the purpose of the article or audio or video segment by checking all that apply of the following: to inform, to entertain, to persuade, for self-expression, to make money, to teach. To measure students' assessment of target audience, students were given a checklist of six different age-range categories (from age 2 to over age 60), two genders, five different racial categories, and five different social class categories (from poor to wealthy). They were asked "Who was the target audience for this message?" and invited to check all that apply. Concord faculty members who responded to these test items agreed that the categories of age and social class were the most relevant variables for the samples of writing, audio, and visual messages that were used in the study. Although in reading instruction, the concepts of purpose and target audience are commonly introduced at the elementary level, scholars continue to shed light on the power and depth of these concepts as sophisticated tools of analysis and interpretation for advanced literary studies and message interpretation (Scholes, 1985).

Reliability and validity

In assessing the reliability of these measures, we have previously noted this study's adaptation of previous research by Quin and McMahon (1995) and

Hobbs and Frost (1999), who used similar procedures and instruments to measure media-literacy skills. The use of a variety of open-ended and checklist instruments enhances the precision of the measures. For example, the measurement of the comprehension and media-analysis variables offers an only moderate level of precision in capturing distinctions between student responses of better and worse quality, because of the need for hand scoring. The counts of paragraph length, spelling errors, and the checklists for identifying purpose and target audience offer a higher degree of precision in producing repeatable results consistently.

To enhance the face validity of the media-analysis instrument, we designed the instruments to resemble the five critical questions model used by teachers to strengthen students' critical-thinking skills. The activity of reading, listening to, or viewing a specific media message and then responding to it by answering a set of questions is roughly parallel to the kinds of instructional tasks that are routine in an English language arts classroom. Statistical evidence to support the construct validity of these measures will be described below when we present data to examine the logical relationships between variables.

Research results

Students in the treatment group who received the yearlong program of media-literacy instruction in grade 11 were compared to a control group in a different school district who received only the pretest and posttest with no treatment. The data were analyzed with use of analysis of covariance (ANCOVA) with the Minitab statistical program. In this analysis, the pretest scores for each variable served as a covariate and the posttest scores were the dependent measures. The analysis of covariance provides an ability to control for initial differences in the two groups, which is a characteristic typical of quasi-experimental designs. It can also be used with unbalanced designs, when sample sizes between groups are unequal. Because pretest variables are usually highly correlated with posttest variables, the ANCOVA design reduces the variability in the posttest scores that are associated with the pretest scores (Keselman, Huberty, Lix, & Olejnik, 1998). On all measures, tests for normality and homogeneity of the within-group regressions were conducted to satisfy the assumptions for the analysis of covariance.

Because the acquisition of media-literacy skills has not been theoretically conceptualized or widely measured by previous researchers, we rejected the use of multivariate analysis procedures (MANOVA). Because this study identifies specific analytic skills that are considered to be subcomponents of the larger domain of media-literacy skills, we believe it would be best to use univariate analysis (ANCOVA) to reveal the effects of each of the variables individually, an approach that could support future scholarly work in this nascent field.

Reading comprehension

Students in the media-literacy treatment group had higher reading comprehension scores than the control group. An ANCOVA showed statistically significant differences between groups in the ability to identify main ideas, $F(2, 727) = 26.84$, $p < .001$. Statistically significant differences in the ability to identify details were also found, $F(2, 727) = 12.92$, $p < .001$. A Pearson product moment correlation of .27 between reading comprehension and identification of details ($p < .01$) demonstrates a modest association between the variables. Table 1 presents the means and standard deviations of reading, listening, and viewing comprehension; identification of specific details; and writing skills.

Listening comprehension

Students in the control group significantly outperformed students in the treatment group in identifying main ideas in a radio broadcast. After controlling for pretest scores, there were statistically significant differences between groups in the ability to identify the main idea, $F(2, 727) = 16.56$, $p < .001$, but no differences were found between groups in the ability to identify details, $F(2, 727) = .46$, $p < .49$.

Viewing comprehension

ANCOVAs showed statistically significant differences between control and treatment groups in ability to identify main idea from a television news broadcast, $F(2, 727) = 49.21$, $p < .001$; no differences were found between groups in the ability to identify specific details from the broadcast, $F(2,727) = 1.43$, $p < .23$. For all three formats, these results indicate that media-literacy instruction improves students' ability to understand and summarize information they learned from reading, listening, and viewing.

Writing skills

Students in the treatment group wrote longer paragraphs than control-group students with the ANCOVA for the word count, $F(2, 737) = 55.11$,

TABLE 1
READING, LISTENING, AND VIEWING COMPREHENSION SKILLS, IDENTIFICATION OF SPECIFIC DETAILS, AND MEASURES OF WRITING QUALITY AND QUANTITY

	Pretest				Posttest			
	Control group		Media-literacy treatment group		Control group		Media-literacy treatment group	
	Mean	(*SD*)	Mean	(*SD*)	Mean	(*SD*)	Mean	(*SD*)
Comprehension of main idea								
Reading	2.24	(.78)	2.25	(1.0)	2.01	(.89)	2.92	(.96)*
Listening	1.80	(1.1)	2.07	(.97)	2.31	(1.2)	2.49	(1.4)*
Viewing	2.27	(.90)	2.38	(1.0)	2.25	(1.0)	2.85	(.93)*
Identification of specific details								
Reading	2.33	(.64)	2.35	(.74)	1.87	(.80)	2.31	(.72)*
Listening	1.80	(1.3)	1.89	(.96)	1.84	(1.2)	1.88	(.96)
Viewing	2.49	(.84)	2.48	(.66)	2.36	(.90)	2.51	(.61)
Writing quantity and quality								
Length of paragraph	44	(21)	49	(28)	36	(17)	72	(36)*
Holistic writing score	2.91	(.71)	2.88	(.88)	2.64	(.74)	3.01	(.75)
Spelling errors	1.3	(1.5)	2.8	(2.8)	1.2	(1.1)	2.2	(2.4)*

Note. ANCOVA *$p < .001$.

$p < .001$, revealing statistically significant differences between groups. However, the ANCOVA showed that students in the treatment condition did not have significantly different holistic writing scores than the control group, $F(2, 737) = 1.74$, $p < .18$. A post-hoc comparison shows that although scores for holistic writing quality are higher in the treatment group, after controlling for variability in pretest scores, no statistically significant difference remains.

Students' spelling errors decreased in both groups, but there were large differences in the number of spelling errors between groups, perhaps as an artifact of the differences in length of written responses between groups or because of district-level differences in approaches to instruction. The ANCOVA for spelling errors reveals statistically significant differences between groups, $F(2, 737) = 9.06$, $p < .001$. Treatment-group spelling errors changed from a mean pretest score of 2.83 to a mean posttest score of 2.25. A Pearson product moment correlation coefficient of .43 between word count and holistic quality ($p < .001$) and a coefficient of –.30 between spelling errors and holistic quality ($p < .001$) provide evidence to support the construct validity of these data. These results indicate that the infusion of media literacy into the grade 11 English class did not detract from teachers' ability to support and strengthen the growth of students' writing development.

How well did students analyze nonfiction informational messages in written, audio, and video formats? The evidence from this study showed significant differences between groups in the ability to identify (a) construction techniques, (b) point of view, (c) omitted information, (d) comparison-contrast, and (e) message purpose. Gains in students' skills in analyzing media messages were evident across the formats of print (newsmagazine), audio (news commentary), and video (news). Table 2 displays the means and standard deviations for data on students' message-analysis skills.

Analysis: Construction techniques

ANCOVA showed statistically significant differences between groups in the ability to identify techniques in reading $F(2, 737) = 21.38$, $p < .001$; listening $F(2, 737) = 70.60$, $p < .001$; and viewing $F(2, 737) = 28.24$, $p < .001$. The construct validity of this concept is supported by data that show a Pearson product moment correlation coefficient of .26 between identification of construction techniques in reading and viewing ($p < .01$); a correlation of .25 between listening and reading ($p < .01$); and a correlation of .27 between viewing and listening ($p < .01$). Identification of construction techniques in reading is also positively correlated with reading comprehension ($r = .24$, $p < .001$). These results suggest that students receiving media-literacy instruction were significantly better than control-group students at the identification of specific construction techniques used to create print, audio, and video messages. Students increased their ability to recog-

TABLE 2
MESSAGE-ANALYSIS SKILLS

	Pretest				Posttest			
	Control group		Media-literacy treatment group		Control group		Media-literacy treatment group	
	Mean	(*SD*)	Mean	(*SD*)	Mean	(*SD*)	Mean	(*SD*)
Construction techniques								
Reading	1.36	(.69)	1.33	(.66)	1.10	(.71)	1.74	(.79)*
Listening	.49	(.70)	1.00	(.77)	.63	(.75)	1.28	(.81)*
Viewing	1.53	(.90)	1.55	(.83)	1.40	(.93)	2.20	(.86)*
Point of view								
Reading	1.78	(.93)	1.08	(.97)	1.73	(1.0)	1.72	(1.0)*
Listening	1.12	(1.0)	1.10	(1.0)	1.37	(.94)	1.50	(.96)*
Viewing	1.62	(1.0)	1.39	(1.1)	1.79	(1.0)	1.93	(.98)*
Identification of omissions								
Reading	1.59	(1.3)	.90	(1.2)	1.74	(1.3)	2.20	(1.1)*
Listening	1.80	(1.3)	1.84	(1.2)	1.89	(.97)	1.88	(.96)
Viewing	1.01	(1.3)	.84	(1.2)	1.54	(1.3)	2.01	(1.2)*
Comparison- contrast								
Similarities	1.78	(1.1)	1.25	(1.1)	1.99	(1.1)	2.23	(1.1)*
Differences	1.56	(1.0)	1.09	(.95)	1.75	(1.1)	2.12	(1.1)*

Note. ANCOVA *$p < .001$.

nize how authors use techniques including suspense, fear, emphasis, tone, graphics, sounds, pace, and sequence in creating messages that are meaningful to audiences.

Analysis: Identification of point of view

While both groups improved from pretest to posttest, ANCOVAs showed statistically significant differences in identifying point of view in reading the *Time* magazine article $F(2, 737) = 10.25$, $p < .001$; listening to the NPR radio commentary $F(2, 737) = 18.68$, $p < .001$; and viewing a segment of Channel One news on hurricanes $F(2, 737) = 15.00$, $p < .001$. A Pearson product moment correlation shows that identification of point of view is intercorrelated across media formats: reading and viewing ($r = .23$, $p < .001$); reading and listening ($r = .20$, $p < .001$); and viewing and listening ($r = .11$, $p < .005$). In comparison with the control group, students receiving the yearlong program of media-literacy instruction demonstrated significantly greater improvements in their ability to identify message values and points of view in reading, listening, and viewing.

Analysis: Identification of omitted information

ANCOVAs showed statistically significant differences in the ability to identify omitted information in reading, $F(2, 737) = 41.06$, $p < .001$, and viewing, $F(2, 737) = 54.91$, $p < .001$. As mentioned earlier, this task indirectly measures strategic comprehension skills because the identification of omitted information requires the ability to generate new ideas in a connected way to information originally presented in the message. A Pearson product moment correlation coefficient of .51 between identification of omissions in reading and viewing ($p < .001$), reading and listening ($r = .30$, $p < .001$), and listening and viewing ($r = .25$, $p < .001$) is an indicator of the construct validity of this concept. These results show that students in the treatment group were better able to identify information that was omitted—by imagining unanswered questions and thinking about specific facts or other points of view that were not presented in the message—from the print magazine article and the television news segment, but not from the audio news commentary.

Analysis: Comparison-contrast

ANCOVAs revealed statistically significant differences between groups in the ability to identify similarities, $F(1, 736) = 33.67$, $p < .001$, and differences, $F(1, 736) = 39.40$, $p < .001$. For example, students receiving media-literacy instruction identified an average of 2.23 similarities as compared with a mean score of 1.99 for the control group. A Pearson prod-

TABLE 3
IDENTIFICATION OF THE PURPOSES OF MEDIA MESSAGES

	Pretest				Posttest			
	Control group		Media-literacy treatment group		Control group		Media-literacy treatment group	
	Mean	(*SD*)	Mean	(*SD*)	Mean	(*SD*)	Mean	(*SD*)
Reading								
To inform	98	(.10)	99	(.05)	96	(.18)	98	(.14)
To entertain	10	(.21)	2	(.16)	12	(.32)	3	(.17)**
To make money	9	(.29)	10	(.30)	13	(.34)	20	(.39)***
To persuade	12	(.32)	9	(.29)	12	(.32)	12	(.32)
To teach	62	(.48)	55	(.49)	60	(.49)	56	(.49)
For self-expression	2	(.15)	0	(.08)	8	(.27)	0	(.08)
Listening								
To inform	74	(.43)	69	(.46)	85	(.35)	73	(.44)*
To entertain	15	(.36)	20	(.40)	24	(.43)	26	(.44)
To make money	13	(.34)	16	(.37)	16	(.36)	24	(.37)**
To persuade	34	(.47)	44	(.49)	29	(.45)	56	(.49)***
To teach	25	(.43)	19	(.39)	27	(.45)	23	(.39)
For self-expression	38	(.48)	51	(.50)	30	(.46)	60	(.48)***
Viewing								
To inform	97	(.15)	99	(.08)	95	(.21)	97	(.18)
To entertain	18	(.38)	21	(.41)	18	(.38)	33	(.48)**
To make money	10	(.31)	13	(.33)	16	(.36)	23	(.44)**
To persuade	13	(.34)	12	(.32)	11	(.31)	9	(.42)
To teach	63	(.48)	62	(.50)	58	(.49)	42	(.49)
For self-expression	10	(.31)	7	(.26)	8	(.27)	4	(.44)

Note. Data are expressed in percentages, ANCOVA *$p < .05$, ** $p < .01$, ***$p < .001$.

uct moment correlation coefficient of .54 between identification of similarities and identification of differences ($p < .001$) is an indicator of the internal consistency between these two variables. In comparison with the control group, students who received media-literacy instruction were better able to identify similarities and differences between the stimulus material (a five-minute newscast from Channel One on Hurricane Andrew) and other kinds of television news, including local and national news.

Analysis: Identification of purpose

On the measures of identifying the purposes of the *Time* magazine article on mosquitoes, ANCOVAs showed statistically significant differences between groups in the identification of purpose as "to make money," $F(2, 737) = 10.80$, $p < .001$, with 20% of students in the media-literacy treatment group identifying this as one of the purposes of the *Time* magazine article. Only 13% of the control group identified this as one of the purposes of the message. Table 3 displays means and standard deviations for the identification of message purpose across the three media formats that were tested.

In identifying the purposes of the NPR radio broadcast on David Brinkley, ANCOVAs showed statistically significant differences between groups in assessments of these purposes: to inform $F(2, 737) = 4.83$, $p < .02$; to make money $F(2, 737) = 2.95$, $p < .08$); to persuade $F(2, 737) = 18.04$, $p < .001$; and for self-expression $F(2, 737) = 25.2$, $p < .001$. Compared to the control group, students in the media-literacy treatment group were less likely to see the radio broadcast as informative and more likely to see it as persuasive, self-expressive, and designed to make money. For example, 24% of students in the media-literacy treatment group perceived the purpose of the audio news commentary as to make money, as compared with 16% of students in the control group.

Students evaluated the different purposes of the Channel One television news segment about Hurricane Andrew. ANCOVAs showed statistically significant differences between groups in these purposes: to entertain $F(2, 737) = 6.59$, $p < .01$ and to make money $F(2, 737) = 10.49$, $p < .001$. One third of students in the media-literacy treatment group believed that the broadcast was for entertainment purposes as compared with 18% of control-group

TABLE 4
INTERCORRELATION MATRIX FOR IDENTIFICATION OF MESSAGE PURPOSE

Across media formats	Reading-viewing	Viewing-listening	Reading-listening
To inform	.20**	.02	.04
To entertain	.01	.18**	.03
To make money	.39**	.36***	.32**
To persuade	.19**	.11*	.04
To teach	.22**	.08*	.26**
For self-expression	.08*	.12*	.01

Note. Pearson product moment correlation, *$p < .05$, **$p < .01$, ***$p < .001$.

students. Nearly one quarter of the students (23%) recognized that the broadcast's purpose was to make money, as compared with 16% of control-group students. An intercorrelation matrix between the reading, listening, and viewing purposes, shown in Table 4, provides further data to support the construct validity of these measures, which appear to be internally consistent across media formats. These results suggest that participation in the media-literacy curriculum increased students' awareness of the economic functions of nonfiction media including news magazines, public radio news, and teen-oriented news programs.

Analysis: Age of target audience

In analyzing the age of the target audience for the *Time* magazine article, ANCOVAs showed statistically significant differences between groups in the identification of readers aged 12 to 17, $F(2, 737) = 7.05$, $p < .008$. The data show that after receiving the media-literacy curriculum, students were less likely than control-group students to perceive that the *Time* magazine article was aimed at teenagers. Table 5 presents the means and standard deviations across the three media formats tested.

In the listening activity, ANCOVAs revealed statistically significant differences between groups in identification of age of target audience as 2- to 11-year-olds $F(2, 737) = 6.09$, $p < .05$, and 40- to 60-year-olds $F(2, 737) = 8.42$, $p < .004$. Compared with students in the control group, students in the media-literacy treatment group were less likely to identify the target audience as children and more likely to perceive the audience as middle-aged. Ninety-five percent of students in the media-literacy treatment group believed that middle-aged people were a target audience, as compared with 89% of control-group students.

For the television news stimulus, the treatment group was more likely than the control group to recognize that the "teen focus" of the Channel One news segment on hurricanes would be more appealing to teens and less appealing to older audiences. ANCOVAs showed statistically significant differences between groups for assessing the audience as 12- to 17-year-olds $F(2, 737) = 9.16$, $p < .003$; 18- to 25-year-olds $F(2,737) = 7.78$, $p < .005$; 25- to 40-year-olds $F(2, 737) = 17.91$, $p < .001$; 40- to 60-year-olds $F(2, 737) = 10.96$, $p < .001$; and viewers 60 years old and older $F(2, 737) = 7.63$, $p < .006$. As compared with the control group, these results show that students in the media-literacy treatment group reflect adult interpretations of the target age groups for the three different media formats. Inspection of the faculty members' written responses to the tests suggests that they strongly perceive the television broadcast to be narrowly targeted to teen viewers. For example, none of the faculty identified people over 25 as a target audience for the television broadcast. As did their students, faculty members also identified both the news magazine and the radio news commentary as aimed at a wider age range than the television news segment.

Analysis: Social class of target audience

Students receiving media-literacy instruction had narrower assessments of how messages were targeted to people of different social classes. In reading, treatment-group students were less likely than the control group to identify the *Time* magazine article as targeted to either poor people $F(2, 737) = 6.75$, $p < .01$ or wealthy people $F(2, 737) = 3.81$, $p < .05$.

In listening to the radio news commentary, ANCOVAs showed statistically significant differences between groups in assessments of the target audience as poor $F(2, 737) = 20.42$, $p < .001$; working class $F(2, 737) = 4.51$, $p < .03$; upper middle class $F(2, 737) = 7.09$, $p < .008$; and wealthy $F(2, 737) = 4.73$, $p < .03$. Students in the media-literacy condition were less likely than the control group to

TABLE 5
IDENTIFICATION OF AGE OF TARGET AUDIENCE ACROSS MEDIA FORMATS

	Pretest				Posttest			
	Control group		Media-literacy treatment group		Control group		Media-literacy treatment group	
	Mean	(*SD*)	Mean	(*SD*)	Mean	(*SD*)	Mean	(*SD*)
Reading								
2- to 11-year-olds	26	(.44)	32	(.46)	37	(.48)	29	(1.0)
12- to 17-year-olds	59	(.49)	60	(.48)	58	(.49)	48	(.50)**
18- to 25-year-olds	78	(.41)	84	(.36)	87	(.33)	77	(.41)
25- to 40-year-olds	92	(.26)	96	(.19)	97	(.15)	98	(.13)
40- to 60-year-olds	85	(.35)	84	(.36)	93	(.24)	89	(.31)
60-year-olds and older	66	(.47)	68	(.47)	78	(.41)	70	(.45)
Listening								
2- to 11-year-olds	4	(.21)	2	(.14)	4	(.21)	1	(.10)*
12- to 17-year-olds	7	(.26)	7	(.26)	7	(.26)	4	(.20)
18- to 25-year-olds	19	(.39)	29	(.45)	21	(.41)	20	(.40)
25- to 40-year-olds	66	(.47)	75	(.43)	72	(.45)	72	(.44)
40- to 60-year-olds	87	(.37)	89	(.31)	81	(.38)	95	(.20)**
60-year-olds and older	83	(.37)	72	(.44)	72	(.45)	77	(.42)
Viewing								
2- to 11-year-olds	26	(.44)	35	(.47)	32	(.47)	23	(.42)
12- to 17-year-olds	67	(.47)	78	(.41)	69	(.46)	81	(.38)**
18- to 25-year-olds	89	(.31)	84	(.36)	90	(.29)	76	(.42)**
25- to 40-year-olds	89	(.31)	77	(.42)	83	(.37)	63	(.48)***
40- to 60-year-olds	83	(.37)	69	(.46)	69	(.46)	56	(.49)***
60-year-olds and older	73	(.44)	60	(.48)	59	(.49)	48	(.50)**

Note. ANCOVA *p < .05, **p < .01, *** p < .001.

perceive the broadcast as targeted to poor and working class people. For example, only 25% of students in the treatment group identified the target audience as poor as compared with 44% of the control group. By contrast, the control-group students were more likely than the treatment group to identify the target audience as upper middle class or wealthy.

In viewing the television broadcast, ANCOVA showed statistically significant differences between control- and treatment-group students' assessment of the target audience in the following two categories: upper middle class $F(1, 726) = 6.66$, $p < .01$ and wealthy $F(1, 726) = 6.99$, $p < .008$. As with the variables about target age, students who received the media-literacy instruction reflect the perspectives of their teachers, who were less likely to see the *Time* magazine article as targeted to the poor; more likely to see the audio news commentary as targeted to upper-middle-class and wealthy people; and less likely to perceive the television news story on hurricanes as targeted to upper-middle-class or wealthy people. For example, all seven teachers identified the audio news commentary as targeted to upper-middle-class and wealthy people. For the lower and upper edges of the social class spectrum, students' conceptualization of social class as a dimension of target audience in relation to different forms of nonfiction news media is substantially different from students in the control group. For example, because of the curriculum's focus on strategies for identifying target audience with textual clues, students in the media-literacy condition may have recognized verbally presented clues in the NPR audio news commentary (e.g., vocabulary, dialect, pronunciation) that led them to believe that poor and working class people were not a primary target audience.

Contribution of grade point average

We were concerned about whether or not students' ability to analyze media messages in print and video was a function primarily of general intellectual ability or a unique dimension of the learning experience. We were able to obtain grade point average (GPA) data for students only in the treatment condition, reflecting their academic performance at both the end of the grade 10 and grade 11 years. This enabled us to examine the relationship between media-analysis skills and overall academic performance. A media-analysis variable was created to reflect analysis

TABLE 6
IDENTIFICATION OF SOCIAL CLASS ACROSS MEDIA FORMATS

	Pretest				Posttest			
	Control group		Media-literacy treatment group		Control group		Media-literacy treatment group	
	Mean	(*SD*)	Mean	(*SD*)	Mean	(*SD*)	Mean	(*SD*)
Reading								
Poor	75	(.43)	75	(.43)	86	(.34)	65	(.47)**
Working class	86	(.34)	92	(.26)	96	(.19)	83	(.37)
Middle class	92	(.26)	96	(.17)	97	(.15)	97	(.14)
Upper middle class	89	(.31)	87	(.33)	94	(.22)	90	(.29)
Rich	81	(.38)	79	(.40)	84	(.36)	75	(.41)*
Listening								
Poor	36	(.48)	44	(.49)	33	(.47)	25	(.43)***
Working class	69	(.46)	67	(.46)	68	(.46)	52	(.50)**
Middle class	84	(.36)	86	(.34)	77	(.42)	85	(.35)
Upper middle class	83	(.37)	87	(.32)	77	(.42)	88	(.31)*
Rich	59	(.49)	72	(.44)	65	(.47)	69	(.46)*
Viewing								
Poor	80	(.39)	77	(.41)	81	(.38)	77	(.42)
Working class	97	(.15)	94	(.22)	92	(.26)	96	(.19)
Middle class	98	(.10)	96	(.18)	95	(.21)	97	(.16)
Upper middle class	89	(.31)	83	(.37)	81	(.38)	69	(.46)**
Wealthy	80	(.39)	73	(.44)	71	(.45)	57	(.49)**

Note. ANCOVA *$p < .05$, ** $p < .01$, *** $p < .001$.

skills across the domains of reading, listening, and viewing. This variable consisted of a summed score based on the eight following variables: identification of construction techniques in reading, listening, and viewing; identification of point of view in reading, listening, and viewing; and identification of similarities and differences in television news viewing. This summary variable had a range from 17 to 0, (M = 8.75, SD = 3.4). A stepwise regression analysis was performed to determine how much of the variance in media-analysis skills could be explained simply by GPA. In the regression design, the criterion variable of media analysis is regressed first on GPA scores and then on pre/postcondition, thus first removing the variance associated with the GPA, an indicator of academic performance, before determining if pre/postdifferences in media-analysis scores are statistically significant. Regression analysis shows that after the variance due to GPA scores is removed, the pre/postcondition is still a statistically significant predictor of higher media-analysis scores (R^2 = 8.00, $p < .001$). This provides further evidence to support both the construct validity of the media-analysis variables and the robustness of students' analysis skill development.

Discussion

This research examined one central question: How does media-literacy instruction, integrated within a yearlong course in high school English language arts, affect the development of students' message comprehension, writing, and critical-thinking skills? Compared to the control group, the treatment group's improvement in the ability to identify main ideas demonstrated improvement in reading comprehension skills. Longer paragraphs and fewer spelling errors are signs of continuing development in writing skills. Widespread teacher perceptions that media literacy is not as rigorous as literature-based instruction (Merrow & Megee, 1996; Tyner, 1998) do not appear to be validated by the results of this study. This research shows that media-literacy instruction embedded in a secondary-level English language arts course can be effective in meeting traditional academic goals. Teachers need be less fearful of making use of a wider range of multimedia fiction and nonfiction texts as study objects when their primary goal remains the development of students' skills of reading comprehension, interpretation, message analysis, and writing.

This study shows how specific textual-analysis skills can be acquired through classroom activities

that incorporate a variety of types of popular media. As described by Scholes (2001, p. 215) "a proper craft of reading—including what we learn from reading poems and other literary works—can and should be used as an instrument for the serious study of all kinds of textual objects." Such a proper craft of reading involves the application of critical-thinking skills in relation to print and nonprint texts. These skills include (a) identifying message design and construction techniques, (b) recognizing how authors express specific values and points of view, (c) comparing and contrasting messages with similar content, (d) noticing when information is omitted from a message, and (e) identifying an author's purpose and target audience. This study contributes to the field by showing how these skills are developed through instruction and how they operate in the context of different media formats.

Students who received media-literacy instruction were more skillful than control-group students at identifying construction techniques used for print news media, audio, and television news. Students were able to describe specific techniques used by authors of different media formats to attract and hold audience attention. Tyner (1998) considered the ability to recognize the constructedness of various forms of texts the central concept in media-literacy education. Such awareness, noted Tyner, is generated as students serve "cognitive apprenticeships" with teachers who emphasize the process of using active investigation to unearth meaning-making processes using the texts of everyday life, making inferences and predictions in ways that "make visible to novice learners those powerful problem-solving strategies and heuristics that more expert readers practice flexibly and strategically" (A. Lee, cited in Tyner, 1998, p. 177). Using texts of which students have greater social or linguistic prior knowledge can help students master analytic skills that contribute to internalizing expert reading practices.

The measurement of students' ability to identify omissions and comparison-contrast, as documented in this study, contributes to the critical-thinking literature, where scholars continue to debate the best ways to operationalize the measurement of critical-thinking skills (Ennis, 1987; Yeh, 2001). The ability to identify information that is not included in a message appears to be a meaningful indicator of critical thinking, since students are required to formulate questions about content not identified in the text. This skill is aligned with Pressley's (1999) observation about strategic readers who use prior knowledge, monitor their comprehension, make predictions, and actively ask questions as they read. In order to identify unanswered questions or information not included in the text, students must activate their schematic representations of the subject matter and use prior knowledge to construct appropriate responses. However, this study cannot discern which specific components of instruction contributed most to the development of this skill. Further research should more formally examine the skill of recognizing omissions as it relates to other measures of cognitive information processing and textual interpretation. It will be important to determine how best to cultivate students' acquisition of this important skill in ways that increase the likelihood of its transfer to the world outside the classroom.

This study finds that students who received media-literacy instruction were more likely to recognize the complex blurring of information, entertainment, and economics that are present in contemporary nonfiction media. Students who received media-literacy instruction appeared to have a more nuanced understanding of interpreting textual evidence in different media formats to identify an author's multiple purposes and intended target audiences. As Scholes (2001) pointed out, while scholars have argued about the impossibility of discovering the intention of an author, at the same time

> we must seek an authorial intention, while recognizing there are many reasons why we shall never close the gap that separates us from the author. The crafty reader must seek authorial intention knowing that what is found will never be exactly that. (p. 230)

Students engaged in critically analyzing media texts quickly discover how mass media texts flatter the most desirable audiences through overrepresentation (Lusted, 1991; Masterman, 1985). Evidence from this research study supports the argument, put forth by Giroux and Simon (1989) and Cortes (2000), that media-literacy instruction may help learners better situate themselves in sociopolitical context.

This research evaluated the impact of one school district's initiative to integrate media-literacy instruction into the secondary English language arts curriculum with a large sample of students. The treatment was a program of studies integrated with English language arts instruction, designed by ordinary classroom teachers with minimal involvement on the part of scholars or experts. It is important to emphasize that the instruction students received was not a specially designed, intensive, short-term instructional program implemented by university faculty or graduate students. It was a course of study designed and implemented by regular classroom

teachers whose specialty is not media literacy but secondary English language arts. In addition, while the teachers shared some common instructional objectives, texts, and activities, they were largely on their own to develop and implement the day-to-day work of the classroom. As a result, this research measures the impact of media-literacy instruction on student skills as this instruction occurs in the "real world," with all the variability that exists from seven teachers teaching over 300 grade 11 students.

One important contribution of this research is its approach to measuring critical-analysis skills across three different media formats. Paper-and-pencil measures were designed that allowed students to demonstrate critical thinking skills that the teachers in the school district valued, including the identification of purpose, target audience, point of view, construction techniques, and omissions. These measures were demonstrated to have social validity based on the judgments of teachers; they reflect both the instructional priorities of the staff and an emerging consensus from the scholarly community with interests in media-literacy education. One of the most interesting findings of this research concerns the consistency of these skills as they were applied across print, audio, and video formats. The question of how critical-thinking skills learned with one medium can transfer to analysis tasks related to another medium is an important area for future research.

There are substantial weaknesses to this research that limit the value of this study. Because of the limitations of the research design, it is impossible to make generalizations to other instructional contexts. A nonequivalent groups design was necessary to employ because the whole grade level was involved in the implementation of the treatment. However, a nonequivalent groups design can never rule out possible differences between treatment and control groups that can contribute to observed differences in dependent variables. We cannot be sure that the differences observed in student performance are the result of an intensive educational intervention that explicitly used a wide range of media texts with a process of "asking critical questions about what you watch, see, and read" as an instructional framework. Selection bias remains a threat to internal validity in all evaluation research using nonequivalent groups. Because we have less detailed information about the content or processes of instruction in the control group, we must be cautious in interpreting the results of this study. Other factors, not measured in this study, may explain some of the differences we found between control and treatment groups. For example, it is possible that students in the media-literacy treatment group received instruction in their social studies program that improved their understanding of the concept of social class. This could have led to the treatment group's greater abilities to identify target audience. Because the two groups are not from the same population, we cannot be certain that the media-literacy instruction played a direct role in the acquisition of skill, or if other unmeasured factors at the treatment or control sites contributed to the improvement in students' skills.

Because the measures of writing quality and quantity were taken from students' spontaneous on-site performance on reading, listening, and viewing comprehension questions, they were limited in their usefulness. Future research should make use of additional naturalistic writing samples, where students have had time for concept development and revision. This would allow for a more complete assessment of changes in student writing skills that may result from the instructional treatment.

This study also did not distinguish between the use of a wider range of media texts in the classroom and specific instructional strategies used by individual teachers to promote reading, listening and viewing comprehension, writing, and critical-analysis skills. While all teachers in the grade 11 media/communications course at Concord High School used a range of print, audio, visual, and multimedia texts, this study does not account for differences in teachers' professional experience; attitudes and interactional approaches may have played a critical role in student performance. Further research should explore differences among teachers' instructional methodologies for integrating media-literacy instruction with English language arts. Future research should help us better understand teachers' attitudes and experiences, and the role of specific instructional methods as they affect the quality of student learning.

As the first large-scale empirical work measuring the acquisition of media-literacy skills in the United States, this research provides suggestive evidence that incorporating the analysis of media messages into the English language arts curriculum at the high school level can enhance literacy skills development. Further work will be necessary to identify the best practices that lead to the greatest increase in skills over time, since it is likely that different instructional practices can affect the development of specific critical-analysis skills. In addition, it will be important to measure whether the critical-thinking skills learned in school transfer to media-consumption experiences in nonschool settings.

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Received November 27, 2001
Final revision received October 31, 2002
Accepted November 4, 2002

VIEWING COMPREHENSION AND ANALYSIS TESTS

After viewing the news story about Hurricane Andrew, answer the following questions below.

1. Write a sentence or two to describe the main idea of this broadcast. Use the WHO, WHAT, WHERE, WHEN, WHY, and HOW structure to explain the main ideas.

2. What was the most memorable information?

3. Identify three relevant questions, facts, or pieces of information that were omitted from the message.

4. What was the purpose of this message? (check all that apply)

___ to inform ___ to entertain ___ to persuade
___ for self-expression ___ to make money ___ to teach

5. What techniques were used to attract and hold your attention?

6. What values or points of view were represented in this message?

7. List three ways that this news story was similar to *and* three ways it was different from local or national television news.

8. Who was the target audience for this message? (check all that apply)

___ 2- to 11-year-olds
___ 12- to 17-year-olds
___ 18- to 25-year-olds
___ 25- to 40-year-olds
___ 40- to 60-year-olds
___ 60-year-olds and older

___ men
___ women

___ poor people
___ working-class people
___ middle-class people
___ upper-middle-class people
___ wealthy people

___ Whites
___ Blacks
___ Hispanics
___ Asians
___ Other