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ABSTRACT

A response-based pedagogy encourages the exploration of multiple perspectives regarding literary works and student construction of defensible interpretations of the same, with the quality of students' critical and creative thinking being the focus of assessment. The National Center for Research on Literature Teaching and Learning's ongoing "Multimedia and Literature Teaching and Learning" project explores the potential of multimedia to facilitate such response-based pedagogies. The project's first stage, detailed in this report, involved reviewing existing commercial applications from a response-based perspective. Seven evaluative categories were established through a series of focus group sessions and then divided into two groupings: multimedia issues and response-based issues. The first three categories--content clarity, technical quality, and use of technology--adopt the former perspective. Response-based issues include: what counts as knowledge, the role of the text, the role of the students, and the role of the teacher. The multimedia literature applications were evaluated by 25 graduate students of literature education and/or instructional technology. Findings reveal that while such programs are generally of high technical quality and linked to works commonly taught in schools, the pedagogical approaches taken are not response-based. Programs designed for elementary students equated literature education with reading instruction; programs designed for high school students generally adopted a traditional text-centered approach. Results also indicate that the applications currently available are technologically, and not pedagogically driven. (AEF)

The Use of Multimedia in Response-based Literature Teaching and Learning: A Critical Review of Commercial Applications

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The Use of Multimedia in Response-based Literature Teaching and Learning: A Critical Review of Commercial Applications

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Abstract

This paper describes a review of multimedia applications for literature teaching and learning from a response-based perspectve. Forty-five applications were evaluated according to three multimedia and four response-based criteria. Findings reveal that although such programs are generally of high technical quality and linked to works commonly taught in school, the pedagogical approaches taken are not response-based.

There is growing recognition among educators of the need for establishing practical pedagogies that facilitate response-based approaches to the teaching and learning of literature (Holland, 1975; Iser, 1978; Langer, 1990). Where traditional approaches to literature teaching and learning champion the close readings of texts and single "correct" interpretations, response-based theorists regad readers as active meaning makers whose personal experiences affect their interpretations of literary works A response-based pedagogy, then, encourages the exploration of multiple perspectives regarding literary works and student construction of defensible interprettions of the same, with the quality of students' critical and creative thinking being the focus of assessment. The National Center for Research on Literature Teaching and Learning's ongoing "Multimedia and Literature Teaching and Learning" project explores the potential of multimedia to facilitate such response-based pedagogies.

The project's first stage, detailed in this report, involved reviewing existing commercial applications from a response-based perspective. The sections that follow describe the criteria we developed for evaluating multimedia literature applications from that perspective and the program acquisition and evaluation process. The findings of that review are then summarized, and the implications of those findings for response-based literature teaching and learning discussed.

Evaluation Criteria

Criteria for evaluating multimedia literature programs were developed by a group of exemplary teachers of literature and graduate students of both literature education and instructional technology, together with the project directors and the directors of the Literature Center. Seven evaluative categories were established through a series of focus group sessions. Responses within each category, while including ratings on a ten-point scale for comparative purposes, were designed to be essentially narrative in form to encourage the same kind of critical thinking about multimedia applications that we would hope such applications would encourage about literature. These fall into two groupings — multimedia issues and response-based issues.

It is entirely possible that a multimedia literature application might be excellent from an instructional technology perspective, but deal with literature in a manner not at all response-based. Group members wanted to distinguish between the two. The first three evaluative categories — *content clarity, technica` quality,* and *use of technology* — adopt the former perspective.

There is some reason to believe that a unique characteristic of the computing medium is its ability to represent cognitive processes in ways that support their internalization as habits of thought (Papert, 1980; Salomon, 1981; Swan & Black, 1993). This category grouping, which includes *what counts as knowledge?, the role of the text, the role of the students,* and *the role of the teacher,* specifically considers how the formal aspects of multimedia literature applications might support or detract from a response-based perspective. It is thus concerned with whether or not existing multimedia programs represent literary works in ways that might support the processes involved in the development of literary understanding.

Program Acquisition and Evaluation

Multimedia literature applications for review were identified through a detailed search of listings dedicated to multimedia materials, such as the Multimedia and Videodisc Compendium (Pollack, 1994) and Multimedia '94 (Educational Resources, 1994), and vendor catalogs that included educational multimedia. We identified fifty-four multimedia literature programs or program series, and acquired and reviewed forty-five of them for this paper.

The multimedia literature applications we acquired were evaluated by twenty-five graduate students of literature education and/or instructional technology. Most were practicing teachers. Each evaluator was given two programs to evaluate and asked to spend some time exploring each of the applications. They were then to complete a written evaluation while viewing the program. The written evaluations were collected and reviewed for consistency by a group of four graduate students and the project directors, at which time some changes were made in ratings to affect a general consensus. The evaluations were then collated and summarized by the project directors.

Summary of Findings

The multimedia literature applications we reviewed were generally moderately priced and designed to be used on commonly available computers, indicating that publishers are trying to make multimedia literature applications that can be used in ordinary classrooms. The majority of them accessed multimedia from a CD ROM disk (31), although some used a combination of CD ROM and laserdisc (10) and few (4) used only floppy disks. The majority (24) were offered for dual platforms (MacIntosh and PC computers), with the remainder evenly split between applications designed exclusively for MacIntosh (11) and those designed exclusively for PC (10) computers. In general, their cost ranged between $25.00 and $100.00 for straight CD ROM or floppy disk offerings, and between $200.00 and $300.00 for laserdisc offerings.

Another good sign was that the programs we reviewed were evenly split between those designed for elementary (22) and those designed for high school (23) populations. Because we found quite a difference in approach between applications

designed for elementary students and those designed for high school students, general descriptions of the programs in these two groupings are given separately below. These are followed by discussions of program ratings on each of the criteria we developed.

Programs designed for elementary students

Fully nineteen of the twenty-two applications we reviewed that were designed for elementary students could be best described as *talking books*. At their most basic, these applications presented stories as illustrated text in a linear fashion, with the text read to the students. All of them highlighted the text as it was read in phrases, but allowed users to click on single words to have them pronounced. Many also defined words on request, and some defined elements of pictures. Many also included a non-English language option in which the text was presented and read in a language other than English, usually Spanish. Most also included sound effects and/or music, and many included animated illustrations. None of the elementary applications we reviewed included video, and only one included any background information about the works presented. None included on-line features that encouraged student comments on, or interpretations of, the works, although a few encouraged off-computer interpretive activities by presenting open-ended questions to be answered on paper, pictures that could be printed and colored, and/or suggested extension activities in a teacher's guide.

Student interaction with elementary talking books was, then, constrained to a kind of enhanced page-turning capability, in which students could click on icons to turn pages, to access definitions, sound, and/or animations, or to access particular stories, chapters, or pages in the program. Nine applications included a print function that allowed students to print text or pictures. Six had interactive quizzes at the ends of chapters or works that tested students' comprehension with multiple choice, single-correct-answer questions. Five included "interactive pages" — illustrations which students could explore by clicking on their different elements to find hidden animations. Two applications allowed students to cut and paste text and pictures, to add text, and to color pictures; one allowed students to add sound.

In short, the elementary talking book applications we reviewed uniformly centered on the reading of highlighted text. The centrality of this feature indicates that publishers view the teaching and learning of literature at this level as little more than the teaching and learning of reading. A common focus on content comprehension and the lack of interest in interpretation, literary devices, authors, and/or background information are further indications of a bias toward skills-based reading as opposed to response-based reading.

The other three elementary applications we looked at were quite various and therefore defy classification. One was an adventure-type game in which players explored an imaginary environment and picked up objects that they were then supposed to return to appropriate nursery rhyme characters. The other two applications might best be described as *story makers*, which, although they included story examples, were primarily devoted to student assembly of a variety of elements to create their own stories.

Programs designed for high school students

While the elementary multimedia literature applications we looked at made more extensive use of the computer's sound and graphics capabilities than did the high school applications we reviewed, the latter made greater use of its nonlinear linking capabilities and interactive video technologies. The high school applications we reviewed also exhibited a difference and a greater diversity in pedagogical approach. Although some of these applications could best be classified as "books on computer" (6), they were different from the elementary talking books. We also found programs whose approaches most resembled those of databases (7), hypertexts (2), hypermedia (6), and problem solving games (2). Each of these is described separately below:

Like their elementary level counterparts, high school *books on computer* presented the full text of collected or single works on the computer screen, had the capacity to access definitions of selected words, and were essentially linear. Many also included interactive questions and/or reproducible off-line exercises similar to those found in the elementary programs. On the other hand, although a few included audio readings of selected passages, none offered a complete reading and none highlighted text as it was read. They were also more likely to at least minimally value student interpretations by providing on-line note-taking capabilities, and less likely to provide high quality illustrations and/or animations.

The *database programs* provided book notes or the complete texts of collected works, together with background information and a variety of database functions for searching, collecting, and printing the information they contained. Most of these applications also included note-taking capabilities, and a few included interactive questions and answers and/or off-line exercises. A few also included rudimentary illustrations, but applications included in this category, like the applications designated "books on computer," were all essentially text-based.

The two high school applications we categorized as *hypertexts* were also essentially text-based. Programs in this category differed from those designated databases in that they did not include typical database functions, but rather extensive links between entries. Both applications in this category were focused on background information about a single author and his works, and, although they included selected passages, did not provide complete texts. Both provided on-line note-taking capabilities, and one application could be extended by students or teachers who wanted to add to the information it contained.

High school programs designated *hypermedia* linked the complete texts of particular works to video segments presented via laserdisc. All also provided extensive background information on authors, historical context, literary devices, and literary analysis; all provided extensive teacher materials; and most included open-ended questions presented on-line but designed to be answered off computer. None included note-taking capabilities.

The final two high school multimedia applications we reviewed were *problem solving games* ostensibly linked to literary works. In both games, students were asked to explore simulated environments and collect clues to solve a mystery. Both

games were highly interactive and contained excellent graphics and sound including digitized video segments. Although both allowed students to copy information into a notebook, they did not allow student-generated entries, and the thinking encouraged was convergent and focused on single correct solutions.

In general, then, the high school applications we reviewed were much more concerned with literature — with interpretations, context, authors, literary devices, and analyses — than were their elementary counterparts, and they were more likely to provide for at least note taking on the part of students. In tone, however, and more importantly perhaps, in form, these applications focused on single "correct" interpretations and analyses. They shared the text-based approach to literature teaching and learning still found in most high schools.

Multimedia Issues

Multimedia issues consider the general quality of multimedia literature applications without regard for their relationships to response-based pedagogy. Evaluators generally rated the programs we looked at quite high (7.26 overall) on the three criteria in this category — content clarity (7.88), technical quality (7.18), and use of technology (6.69) — indicating that commercially available applications are generally of good quality. Specific findings for each criterion are detailed below:

Content clarity

Content clarity is concerned with the general accuracy, completeness, and age-appropriateness of a program. Both elementary and high school applications were most highly rated on this criterion (high school, 8.09; elementary, 7.68), indicating that the applications we reviewed could quite easily be incorporated into literature teaching and learning. Half of the elementary programs reviewed focused on fairy tales (9), fables (2), and Mother Goose rhymes (1). Five elementary applications were somewhat similarly based on existing picture books adapted for the computer, and one, the only one that included references to literary concerns, was linked to a commercial reading series. All but two of the high school multimedia literature applications we reviewed were based on book-length works among those most frequently taught in high school English classes (Applebee, 1989) or on authors common to the seven major literature anthologies used in such classes (Applebee, 1991), thus could be incorporated into high school literature classes without any change in existing curricula.

Technical quality

Technical quality is concerned with the quality of a program's user interface and its ease of use. Evaluators found most programs to be of generally high technical quality (7.18), indicating that they were fairly easy to use and lacking in technical problems. Elementary applications were rated slightly higher (7.45) than high school applications (6.91) on this criterion, most probably because of their basic simplicity. Evaluators had difficulty using the more complicated functions of some high school programs, and some high school programs required more complex and more specific hardware configurations, making them difficult to install and run.

Use of Technology

Use of technology is concerned with whether or not an application makes good use of multimedia and computing technologies. Evaluators generally agreed that the programs they reviewed did (6.69). High school applications were rated a good deal higher (7.52) on this criterion than elementary applications (5.86), as it was generally felt that in many cases *talking books* could just as well be on tape as on computer. The most highly rated applications in terms of technology usage were the high school level *hypermedia* applications (8.11), most probably because of the high quality of the video they accessed, but also because many had extensive nonlinear linking and their availability of tools for student or teacher construction. Other features viewed positively in this regard included interactive pages, search, cut and paste, and print functions, and note-taking capabilities.

Response-based Issues

Response-based issues specifically consider how the formal aspects of a program might support or detract from a response-based perspective. Both high school and elementary applications were generally rated a good deal lower on response-based criteria (4.69 overall) than on multimedia criteria, and elementary programs were rated significantly lower (4.06) on average than high school programs (5.32). Such results are quite discouraging, indicating as they do that multimedia literature applications, rather than breaking new ground in literature teaching and learning, have generally adopted older and more traditional reading and text-based pedagogical approaches. Specific findings concerning each response-based criterion are discussed below:

What counts as knowledge?

What counts as knowledge? is concerned with the formal representation of knowledge within a program; with whether a program represents knowledge as constructed or as static, as evolving or as canon. In general, evaluators found that the multimedia applications we reviewed tended toward the latter (overall, 4.65). Elementary level applications were rated a good deal lower (3.82) than high school applications (5.48), mostly due to their overwhelming focus on single readings of texts. The more highly rated elementary applications provided multiple voices, open-ended questions, access to background information, and/or interactive pages. Elements in high school programs that evaluators found particularly response-based included multiple representations of the same knowledge, search capabilities, provisions for note-taking and/or editing, open-ended questions, access to background information, nonlinearity, and construction tools.

The role of the text

The role of the text refers to the way a program represents meaning in relationship to a text. In general, evaluators felt

that the majority of applications they looked at did not support a response-based approach to text (4.83), but rather adopted a more traditional, text-based approach. Elementary level applications were rated lower (4.18) in this category than high school level applications (5.48). For the most part this is due to their lack of provision for student responses, but also because of their frequent use of pop-up definitions which evaluators thought created a very concrete impression of meaning residing in text. The two elementary applications most highly rated on this criterion, in contrast, offered alternative definitions of words from which students could choose. The extensive use of single-correct-answer, multiple-choice questioning in the elementary programs was also deemed text-based as opposed to response-based in form. Evaluators found high school applications to be a good deal more response-based in their representations of meaning, mostly on the strength of two features commonly found in them — note-taking capabilities and open-ended questioning. Features in high school applications that evaluators felt detracted from a response-based approach included single interpretations of text, the ability to click on text to obtain meanings and new information, pop-up definitions, and, to some extent, search capabilities.

The role of the students

The role of the students is concerned with whether and how a program validates students' responses to a literary work. Evaluators gave this criterion the highest ratings in the response-based category (overall, 5.59; high school, 6.09; elementary 5.09), indicating that they felt that students were somewhat empowered by the programs we reviewed. Features that evaluators found response-based included interactive pages, construction tools, note-taking capabilities, nonlinear access to background information, and open-ended questioning, although it was noted that the common practice of presenting questions on-line to be answered off-line tends to value the questions (i.e., the "expert") over the answers (i.e., the student). It should also be noted that the programs we reviewed, if they provided them at all, provided opportunities for individual student responses rather than spaces in which discourse among students was encouraged, and that none of them encouraged student-generated questions.

The role of the teacher

The role of the teacher is concerned with whether a teacher is empowered or constrained by a program, and with whether it promotes student-teacher interaction. Evaluators gave this criterion the lowest ratings in any category (overall, 3.68; high school, 4.22; elementary 3.14), indicating that they felt that teachers were essentially disregarded by the programs we reviewed. Few of the applications we looked at had well designed teacher materials; those that did usually placed them in printed teacher guides, thus undermining their value, and many teacher guides offered no teaching materials at all. Very few of the applications we looked at included any provision for teacher input other than the ubiquitous "notes," and only one included program management tools.

Discussion

The results of our survey of commercially available multimedia literature applications reveal that while such programs are generally of high technical quality and linked to works commonly taught in schools, the pedagogical approaches taken are not response-based. In general, we found that the approaches to literature teaching and learning taken by the applications we reviewed mirrored the approaches taken in the majority of American schools (Applebee, 1990). Programs designed for elementary students commonly equated literature education with reading instruction; programs designed for high school populations generally adopted a traditional text-centered approach.

Our preliminary findings also indicate that the applications currently commercially available are technology, and not pedagogically, driven. Most of the applications we have looked at exploit the capabilities of multimedia technologies, often very well, but frequently at the expense of reader-response pedagogies. We have commonly seen single explanations, interpretations, definitions, and pictures popping out of text. We have seen enormous arrays of biographical, historical, and cultural information surrounding texts to the point of overwhelming them. We have seen graphics, animations, sound, video, hypertext, and color used for seemingly no purpose other than that they can be. We have seen very little provision for student input, almost no provision for collaboration. In short, we have seen applications that support the development of "correct" interpretations of literature rather than the development of literary understanding.

We have also seen a lot of promise. We have seen features in many applications that we believe would significantly contribute to students' development of literary understanding if they were made accessible to them — the linking capabilities of hypermedia, the affective dimensions of video, graphical, and design tools, and communications capacities for supporting on-going conversations among students. The construction of effective tools for response-based teaching and learning is the focus of the second phase of the "Multimedia and Literature Teaching and Learning" project. It will be informed by the strengths and shortcomings of the applications reviewed in this study.

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