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AUTHOR Evans, John Frank; Pritchard, Ruie Jane
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ABSTRACT

The study reported in this paper argues for a process model of postsecondary instruction where reader-response literary theory in general, and L. Rosenblatt's transactional theory specifically, provides a theoretical framework for strategies which use computers to teach postsecondary English. The paper begins with an examination of the historical and theoretical basis of the relationship among various literary theories. The transactional computer-assisted model proposed in the paper reconciles approaches for teaching literature and teaching composition, while addressing questions about the roles of literary theory and computer technology in postsecondary classrooms. The defining characteristics of the model in the paper are that it is computer facilitated, process oriented, student centered, recursive, democratic, generative, and adaptable. The paper suggests strategies and experiences which allow students to consider a text as they might consider the world. The paper reports an application of the model in a computer-assisted postsecondary classroom and includes example lessons and student responses. Those who design postsecondary curricula, particularly those who teach postsecondary English, will find the model useful and timely, especially if they have a computer-assisted composition program in place. Contains 58 references and 14 figures illustrating sample computer screens and student responses. (RS)

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A Computer-Assisted Pedagogical Model for Transacting with Literature

John Frank Evans
Johnson C. Smith University

Ruie Jane Pritchard
North Carolina State University

National Council of Teachers of English
1111 W. Kenyon Road, Urbana, Illinois 61801-1096

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Abstract

This study argues for a process model of postsecondary instruction where reader-response literary theory in general, and Rosenblatt's transactional theory specifically, provide a theoretical framework for strategies which use computers to teach postsecondary English. Process models which engage students in active, recursive writing and reading can be exploited with computers. Computer-assisted models are: (1) nonjudgmental, (2) cumulative, (3) democratic, (4) transformative, and (5) dynamic. This transactional computer-assisted model proposed herein reconciles approaches for teaching literature and teaching composition, while addressing questions about the roles of literary theory and computer technology in postsecondary classrooms. The defining characteristics of the model are that it is: (1) computer facilitated, (2) process oriented, (3) student centered, (4) recursive, (5) democratic, (6) generative, and (7) adaptable. This study offers a theoretical and research base for the proposed model, pedagogical strategies, and computer-assisted exercises for implementing the model in a context which has the potential for dramatically altering approaches to teaching postsecondary literature and writing.

Although several collections of essays discussing reader-response theories have been produced in the past fifteen years, only a few describe the pedagogical practices associated with it, and no single extended work examines the implications that such theories have for teachers and students who work in a computer-assisted classroom. Proposing and examining a model for applying the transactional literary theory in this kind of environment were the purposes of this study.

At the center of this study is an epistemological debate concerning the roles of the reader, the text, technology, and the teacher in the making of meaning and the shaping of knowledge. While the study is carefully defined within its theoretical framework and grounded in transactional views of literary theory, it is a pragmatic study. As such, it assumes that postsecondary English instruction contributes to the development of a critical consciousness, that is, reflects a learner's healthy

self-consciousness regarding her reading and writing processes, and it assumes that the method of instruction can shape understanding. Therefore, this study suggests strategies and experiences which allow students to consider a text as one might consider the world.

The contention of this study is that meaning is created in the negotiation between reader and text. In Rosenblatt's words (1978), it is in the transaction between reader and text that the poem, story, or literature exists. This transaction moves along a continuum between the reader and the text, sometimes closer to the reader and sometimes closer to the text, yet it is simultaneously a part of each and momentarily distinct from each.

Those who design postsecondary curricula, particularly those who teach postsecondary English, will find the model useful and timely, especially if they have a computer-assisted composition program in place, or if they have begun to plan one.

Assumptions of the Model

This model for teaching literature builds on five assumptions. ***The first assumption of the model is that the knower and the known are related symbiotically.*** In the computer-assisted reading and writing exercises described in this study, students are actively engaged in discovering their response patterns so that they become aware of (1) how they shape meaning through their biases and perceptions, and of (2) how their previous knowledge and experience inform their reading and learning processes. The back and forth movement between reader and text in a computer-assisted transaction makes explicit one's implicit reading and writing processes. Strategies which combine a close reading of texts with the student's experiences are central forces in this study.

The second assumption of the model is that learning to read and write is a process. Learning to read or write is not simply a matter of mastering a linear mechanical process which can be broken down into small manageable bits. It is

because reading and writing processes are recursive, complex, and highly individualized that a process pedagogy is best suited to this model.

The third assumption of the model is that writing-across-the-curriculum practices have implications for the literature classroom. Writing serves as an "important index to intellectual thought and development" (Young & Fulweiler, 1986, p. 36) when language is the center of the literature curriculum.

The fourth assumption of the model is that because classrooms are not value-free, teachers have a responsibility to celebrate plurality and model democracy. Current practices which often disenfranchise students do not result from the malicious enterprise of literature teachers; rather, they can be by-products of misapplied pedagogy. Classrooms are not politically free or value-free when instructional materials are dominated by texts or teaching practices which exclude the cultural and experiential backgrounds of many of the students.

The final assumption of the model is that the computer can be used in such a way as to facilitate the understanding and application of the preceding assumptions. Implicit reading between the lines becomes explicit writing between the lines in the exercises in this model. Thus, students see a graphic representation of their reading processes when they insert their thoughts within the text as they are reading. Because the computer is nonjudgmental, the student is free to write a first response without worrying about appropriateness or correctness. Therefore, the student is more likely to take risks in responding to literature while writing at a computer. Perhaps the most important role the computer plays is the most elementary: it provides a concrete manipulative to illustrate an abstract. The manipulation of words on a computer screen involves the physical movement of symbols from one place to another, but all the while it is illustrating the more abstract process of thinking.

Focus of the Study

The study addresses four areas:

1. The **historical and theoretical base** examines the relationship between various literary theories, with an emphasis on reader-response theory and the teaching of English.
2. The **research base** reviews reader-response pedagogy, the writing component in the teaching of literature, and the scholarship relative to English and computers. In this review, the potential relationship between computer-assisted English classes and the transactional literary theory is also raised.
3. The **computer-assisted model** is described for applying reader-response literary theory, specifically the transactional literary theory, in a postsecondary English classroom. Suggestions for teachers are provided.
4. An **application** of the model in a computer-assisted postsecondary classroom is reported with example lessons and student responses.

The study concludes with implications and recommendations for further research.

Historical and Theoretical Base

J. C. Ransom, in *The New Criticism* (1941), warned that readers should not confuse the meaning of a poem with the poet's intentions or the poem's effect on the reader. On one end of the continuum of meaning stands the idea that emotions obscure one's understanding of a poem or work of literature, and on the other end stands the idea that emotions reveal one's understanding of a poem or work of literature. Intentionally or not, the postsecondary literature classroom became the training ground for literary critics: the teachers modeled the New Critics and the students modeled the teachers, each getting further from a personal reading of the text.

As a proponent of New Criticism, W. K. Wimsatt in *The Verbal Icon: Studies in the Meaning of Poetry* (1954), sought to separate the reader, the writer, and the literature and to describe and defend an object and subject split. He espoused a

theory and pedagogy of literature which would neither confuse the poem with its origins nor confuse the poem with its results. Confusing the poem with its origins became known as the "intentional fallacy" while confusing the poem with its results became known as the "affective fallacy."

Consider that teachers of English who have trained under professors ascribing to principles of New Criticism are not likely to be aware that what seems like a commonsense approach to a poem is really a carefully constructed New Critical perspective. Beginning teachers and veterans alike are affected by the expediency of New Criticism. "I remember the relief I experienced as a beginning assistant professor when I realized that by concentrating on the text itself I could get a good discussion going about almost any literary work without knowing anything about its author, its circumstances of composition, or the history of its reception" (Graff, 1989, p. 178). In fact, doing one's own homework as a New Critic teacher could mean reading the literary analysis and commentary rather than reading the work itself. Graff continues to explain that "literary theory teaches us that what we don't see enables and limits what we do see."

As a proponent of reader-response criticism, Louise Rosenblatt denies the subject and object split, and refuses to separate the reader and the text. In *The Reader, the Text, and, the Poem* Rosenblatt writes, "The poem comes into being in the live circuit set up between the reader and the text" (1978, p. 14). This model manifests the heart of Rosenblatt's theory: the transaction that goes on between the reader and the text.

Reader-response criticism can best be thought of within a continuum of practice. Along this continuum emphasis is placed to greater or lesser degree on the role of the reader over or against the role of the text in the process of making meaning. Norman Holland, David Bleich, Stanley Fish, and Wolfgang Iser are considered reader-response theorists, but each has a different view of the reader, the act of reading, and the text. These theorists share much in common with Louise Rosenblatt because they all write passionately about the importance of the reader's role over and against the role of the text.

It is important to consider the theory of Norman Holland (1986) first because his theory is often called the *transactive* theory, which can be confused with the transactional theory of Rosenblatt. Holland's term *transactive* is borrowed directly from transactional psychology. With the term *transactive*, Holland suggests readers recreate literature just as "transactional psychologists have shown we create colors, shapes, and directions of the world we perceive" (p. 248).

In trying to bridge the concerns of New Criticism and traditional Freudian psychology, Holland regards literary interpretation as a function of an individual's psychological identity. "A literary transaction has the same dialectical structure as our other acts of perception: we perceive the text, as we perceive all reality, through a preexisting schema; each of us will find in the literary work the kind of thing we characteristically wish or fear the most" (p. 817).

At least part of what David Bleich (1978) calls the *subjective paradigm* declares that truth and knowledge are the products of linguistic response. Concerning the reading of literature in a classroom, Bleich suggests that interpretation should be determined more by a negotiation of the students/readers with the text than by any reference to outside authorities. In a classroom influenced by Bleich, the discussion after a reading begins with each student making a response statement to the question: "How do you feel about the story?" Then the questions move to, "What words make you feel this way?" and, "Which sections or sentences in the story make you feel this way?" After each student has had a chance to declare an individual response, the discussion moves toward a consensus of what the story means to the whole group. The meaning of the text is what the group declares it to be and it comes about through sharing responses. The group of two or more readers motivated by such a concern is what Bleich calls the "interpretive community."

The model presented in this study borrows from Bleich an interest in students' responses both individually and collectively, even so far as using Bleich's focus on individual words and phrases from the text as stimuli for certain responses. But the model takes a personalized approach as far as how meaning is formed. The focus for this model is on the transaction between the individual reader's experience of the

text and the text itself, rather than on the interchange between or among a group of readers discussing a text.

Stanley Fish (1980) is probably the most celebrated reader-response critic in America. Fish declares that when the reader is engaged, he or she accommodates the flow of the text by considering several perspectives alternatively. Fish suggests that many things look different when the subject-object dichotomy is eliminated as the assumed framework for a critical discussion. In the reader-response class which Fish facilitates, the "reader's activities are at the center of attention, where they are regarded not as leading to meaning but as having meaning" (p. 66).

For Fish there is no such thing as an objective text because everything in a reading--its grammar, syntax, and semantic units--is an interpretation. What happens inside the student/reader is the most important question. What makes an interpretation acceptable in Fish's reader-response class is the degree to which the interpretive community can agree on what the text does rather than what it means (Fish, 1980, p. 338).

This dialectic process is explored from a different direction by Wolfgang Iser (1971, 1978), but his idea is similar to Fish's regarding the expectations a writer has for his audience. According to Iser, writers expect readers to read between the lines or fill in the gaps to a certain extent; the greater the extent, the greater the artistry on the part of readers and writers. The artistry is a matter of degrees between expectations on the writer's part and frustrations on the reader's part. Iser claims that whenever the flow of reading is interrupted and the reader is led off in unexpected directions, the opportunity is given to the reader to fill in the gaps, "indeterminences," left by the text itself. In *The Act of Reading* (1978) Iser writes, "Reading is an activity that is guided by the text; this must be processed by the reader, who is then, in turn, affected by what he has processed" (p. 178).

In simple terms, the reader matches her previous experiences and knowledge with what she thinks the text expects her to have. Metaphorically, what students bring with them to their reading are their experiential backpacks. As each reader confronts gaps in a text, she unpacks her backpack of experiences in order to

understand the text on her own terms. Iser is reluctant to say where the influence of the text ends and the activity of the reader begins, or vice versa. While Iser does allow the reader a good deal of freedom, he does not take a *laissez-faire* attitude. Rather, he reminds us that the text exerts logical constraints inherent in the language and in our expectations of a literary text, so that criticism, interpretation, and reading do not fall into total anarchy.

The work of prominent reader-response theorists Norman Holland, David Bleich, Stanley Fish, and Wolfgang Iser demonstrates, respectively, the necessity of focusing on the reading process itself, not the reader or the text; a procedure for involving students in becoming aware of themselves as an interpretive community where the students and their thoughts are at the center; the understanding that the meaning of a text is made by the reader, not found in it, and that our interpretive strategies shape the answers we get; and the practice of writing between the lines and filling in the gaps as one reads. Jane Tompkins (1980) further adds to the model used in this study the recognition that writing in response to a text makes the reader's processes of reading become apparent: "reading and writing exchange hands and become names for the same process" (p. xxi). In the model presented in this study, writing is crucial to the reader-response exchange because it leaves for the student an artifact of her thinking.

Rosenblatt and the Transactional Theory of Literature

Louise Rosenblatt is the pioneer of the transactional theory of literature. Rosenblatt uses the word *transaction* to suggest that reading is a negotiation between reader and text. "'Transaction' designates, then, an ongoing process in which the elements or factors are, one might say, aspects of the total situation, each conditioned by and conditioning one another" (1978, p. 17). According to Rosenblatt, then, meaning is not in the reader or in the text, but it is in a transaction between them. In her preface to *Literature as Exploration* (1983), Rosenblatt explains that the title is a metaphor for reading and teaching literature, not a definition of literature.

"The reader counts for at least as much as the book or the poem itself; he responds to some of its aspects and not others, he finds it refreshing and stimulating or barren and unrewarding" (p. v).

Rosenblatt points out that students must not be spectators to the literary experiences of their instructors. While the students' responses are central, it is up to the teacher to create a nonthreatening atmosphere for friendly exchange where students are free to make authentic judgments and express emotions. If students are reluctant to do this in discussions at first, they should be encouraged to write anonymous comments on the work. "In the molding of any literary experience, what the student brings to the literature is as important as the literary text itself" (1983, p. 82).

The Reader, the Text, and the Poem (1978) emphasizes that the central event in reading is the author-text-reader transaction which is governed by the stance a reader takes from clues in the work. Rosenblatt describes the stances as either *efferent* or *aesthetic*. Reading *efferently* means one is reading primarily for the information one takes away from the text. Reading *aesthetically* means one reads for the experience lived through in the process of reading. Rosenblatt offers the premise for what is literary in *The Reader, the Text, and the Poem:* "A text, once it leaves its author's hands is simply paper and ink until a reader evokes from it a literary work" (p. ix).

Reading in the transactional view, then, is not a linear process, but rather, it is weaving the thread of meaning into and through the fabric of individual lives and pieces of literature. Rosenblatt points out that often the predominant stance taken by students reading a required story in the classroom is *efferent* because the teacher too often encourages students to look for facts and details in the story or poem. Rosenblatt argues that when teachers ask, "What facts does this poem teach you?," they tacitly instruct students to adopt an efferent stance that almost guarantees that students will not have an aesthetic experience of the poem (1978, p. 40). While *efferent* reading is necessary and desirable when reading instructions and gleaning the

information that students need to understand much of the material they must read in school, this is not the place to start or stop in the reading of literature. "The reader who adopts the *aesthetic* stance can pay attention to all of the elements activated within him by the text, and can develop the fusion of thought and feeling, of cognitive and affective, that constitutes the integrated sensibility" (1978, p. 46). The English teacher must know how to differentiate between these stances and how to design strategies which model for students how and when to evoke the appropriate stance.

Reader-Response Research and Research Concerning Computer-Assisted English Classrooms

One area of research which grounds this model addresses the practice of using writing to learn (Britton, 1970; Emig, 1983; Martin, Newton, D'Arcy, & Parker, 1976; Young & Fulweiler, 1986). Since the writing-to-learn research has documented its benefits so well, attention will be given to more recent studies validating other innovative practices in the teaching of literature.

Reader-Response Research

Literary critics, reading theorists, and composition specialists agree that research regarding postsecondary students' responses to literature dates to I. A. Richards's *Practical Criticism* (1929), where he reports his investigation of the responses to literature given by Cambridge University English honors students. He found a wide variety of responses that he termed "stock" or "sentimental" responses, which he felt clouded the reading of these students. Rosenblatt writes, "Richards speaks of *mnemonic irrelevancies*: misleading effects of the readers being reminded of some personal scene or adventure, erratic associations, the interference of emotional reverberations from a past which may have nothing to do with the poem" (1978, p. 144). Rosenblatt disagrees with Richards and also reminds us that it is our memories and associations that allow us any literary experience at all.

The work of Kenneth Goodman (1973) on miscue analysis also stresses the importance of the reader's contribution to the meaning of a text (p. 63). Goodman (1984) suggests that readers create a "parallel text" in response to cues in the text being read. This parallel text, based on inferences, is tentative and develops as one reads. (The lessons created to implement this proposed model help to make evident the parallel text a student creates as she reads.)

Texts that are reader-friendly or "considerate" (Anderson & Armbruster, 1984) are those which the reader follows easily because they are predictable in syntax or semantics and are clear in style and content. More familiar texts can be comprehended readily. However, understanding of literary texts usually relies on more than decoding ability and other efferent strategies. Literary texts can be "inconsiderate" texts for the naive reader who does not understand literary conventions and devices that the author used to manipulate the reader--such as esoteric structure, allusion, subplots, flashbacks, imagery and other figurative language, irony, symbolism, thematic motifs, crafted names for characters and settings, to name a few. When a reader has not developed any processing strategies for such devices, comprehension suffers.

The model proposed herein addresses some of these literary conventions and devices in a systematic way with the goal of expanding a student's repertoire of strategies for comprehension monitoring during aesthetic reading. When one is aware of her own reading processes, she is alert to when a "triggering event" (Brown, 1980; Collins & Smith, 1982) hinders understanding, such as when the reader realizes that what was expected to happen in a text has not occured, or that there is too much new information, which results in confusion. When comprehension lags, the reader can apply strategies that were explored for opening texts. For example, she can slow down, reread, ask questions, read between the lines, call upon her prior knowledge and biases, consider the author's intent, define unknown vocabulary, visualize the setting, seek out symbols and irony, hear how a character is speaking, or analyze tone. These strategies can be explicitly modeled and taught.

Palinscar and Brown (1984) determined in their study of reciprocal teaching

that when a teacher and a student took turns in an interactive dialogue centered on specific text features, as was done in the application of this model, comprehension was increased, and gains were made in summarizing, generalizing, retention, and transfer of learning. The reciprocal teaching methods that they proposed forced the student to be active, provided immediate feedback, and introduced "scaffolds" where a student practiced with a great deal of modeling and support. In the interactive model used in this study, for example, the instructor creates a series of highly structured lessons that ask students to manipulate a text using a set sequence and a variety of prompts. Working through the exercises in a nonthreatening way with a more sophisticated reader of literature (the instructor) as a guide, the student becomes aware of the aesthetic strategies, that is, the comprehension-fostering activities, that can be used to understand and appreciate a literary text.

Although it would become tedious and cumbersome to "massage" every text for the many literary devices which can be used, as was done in the application of this model, students still need explicit directions if they are to expand their literary perception. Teachers can safely assume that most students are apprentice readers of literary texts who do not understand the unique properties of literature. It is very difficult for "reality-bound" readers to evaluate the literary qualities and formal features of stories, so they focus mainly on plot (Crowhurst & Kooy, 1986; Culp, 1985; Golden & Guthrie, 1986; Somers, 1973). Britton (1984) found that as "reality-bound" students read more and began to understand the unique properties and conventions of literary texts, they formed judgments based on more than story content. Other studies show that the amount of literature one reads is significantly related to the quality of interpretation (Beach, Appleman, & Dorsey, 1991; Svensson, 1985; Thomson, 1987). As Beach states in citing a 1988 study of Wolf, "With each new text, readers apply an evolving literary 'data-bank' of prior literary experiences, learning to read 'resonantly'" (Beach, 1990b, p. 70). This model was created to provide such guided experiences with literary texts.

The most recent compilation of reader-response research is the bibliography by Beach and Hynds (1990) which identifies research that arises out of pedagogy

associated with reader-response theory. Reader-response research has been conducted in classrooms from across a broad spectrum of ages. Most of the research has focused on the elementary or middle grades, perhaps because the language arts curriculum there has been more open to a reader-response pedagogy. The research summarized herein is mostly from secondary and postsecondary classes.

Some research has shown that when students are given the chance to role-play in response to literature, they are often better able to empathize with a character's experiences (Heathcote, 1980). Readers differ in their ability to empathize; usually females are better at it than males (Bleich, 1986). Bruner adds that by assuming the voice of a narrator or retelling the story in the reader's own language, students acquire literary language through which they discover meaning (Bruner, 1986). This empathizing ability is important to higher level thinking skills and interpretation. It should be fostered, modeled, or demonstrated to deepen the understanding of both males and females as they learn to achieve different perspectives (Beach, 1990a).

Most studies on reader-response show that writing plays a major role in the literature classroom (Farrell & Squire, 1990). When students write about their reading, their essays are significantly higher in quality. Further, the writers show more willingness to explore alternative perspectives than those who only discuss literature, especially when they write in a personal mode (Newell, Suszynski, & Weingart, 1989). Atwell (1987) discovered that as students write letters to each other and/or to the teacher about the literature they are reading, their understanding of the literature becomes fuller and their writing and reading abilities improve. Some studies have shown that the more students are willing to explore their personal responses, the more insightful are their literary interpretations (Lytle, 1982). Furthermore, the more students elaborate about related character attributes in their free writing and their story maps, the higher the quality of their final explanations of a character's actions in the texts they are reading (Beach, Appleman, & Dorsey, 1991).

Beach (1990a) analyzed journal entries in response to five short stories read in a college literature class according to what reading/thinking behavior each student

demonstrated: engaging, autobiographical, describing, interpreting, judging, and metacognitive awareness. The level of interpretation and degree of elaboration were determined using rating scales. He found that the more students elaborated in writing about their own evoked experiences, the more likely they were to explore the thematic significance or point of the experiences included in the literature. This suggests, as did the Newell et al. study (1989), that informal, personal writing fosters insights into literature.

Another feature of reader-response pedagogy is the extended personal essay. Extended writing about texts improves interpretation more than writing short answers or no writing at all, according to a comparative study conducted by Marshall (1987).

In summary, research suggests that reader-response practices, especially writing, enhance the understanding of texts which are of either a literary or nonliterary nature. Research validates that writing used frequently as an integral part of the teaching process, that is, writing used for more than essay test questions or formal papers, improves the understanding of the subject matter and enables students to make applications of and associations with what they have studied.

English and Computers

Computers contributed little to the postsecondary English classroom until the early sixties, when linguists and literary scholars used room-size mainframe computers to produce textual analyses of literature. Now things move much faster and, with an optical scanner, texts can be read into the computer electronically at a few seconds per page. The advent of computerized text analysis marks the next generation of applications of the computer to literature instruction. An ambitious eighth-grade student with a laptop computer could run a Hemingway text through a style analysis program during the commercials of "Star Trek" without missing a second of Captain Picard's starship log. Still, this kind of information about a text's surface structure has had little influence on pedagogy. Computers entered the English classroom

through another door.

Computers directly influenced the teaching of English when programs were developed to imitate the way professional writers prepare their work. Research has demonstrated that computers ease the revision process, improve writing scores, and lessen writer's anxiety (Schwartz, 1984; Vockell & Schwartz, 1988). Nash and Schwartz (1987) at Montclair State College found significant improvement in students' fluency, coherence, and use of evidence when computers were used as part of their composition instruction. Epstein (1984) found in the experimental poetry course at Brown University the most successful use of microcomputers in a literature classroom to date. The Brown experiment provided interactive models that purport to mimic and enhance classroom dialogue and interaction between instructor and student and between student and student. Epstein concludes that her study also raises pedagogical and theoretical questions which force us to reformulate the basic premises that underlie what we do in the literature classroom, and to ask ourselves what it is--skills? concepts? content?--that we actually teach.

Other scholars describe the potential of computers in the literature class. Marshall's (1989) research suggests that activities like computer bulletin board responses to stories as well as dialogic journal writing and collaborative learning can motivate students to share responses as members of a social group. Bruce describes how the computer can be used as a "tutor, a tool, a way to explore language, a medium and an environment for communication" (1987, p. 277). Purves adds that computers in the literature classroom may have two general functions: to present literature and to record responses. He explains how hypertext programs can add more information to the reading process by allowing the reader immediate access to related texts. Furthermore, he suggests "preprogramming questions and response starters, creating a computer game based on a text by using desktop publishing and networking responses to a text" (1990, p. 124).

Although research is available on the impact of computers in composition instruction, little research looks at the impact of computers on the study and teaching of literature. Moreover, no research studies were found which specifically explore

the use of computers in a reader-response pedagogy. However, some scholars describe reader-response applications of computers to teach literature. White and Pritchard (1988) describe using a word-processing exercise which encourages students to write between the lines of a passage from *Huckleberry Finn* in order to "insert directly into Twain's text the thoughts they think Huck has--and to do so using Huck's language and Twain's style" (p. 208). Evans (1985) describes using word-processing exercises to allow students to examine characters from *As You Like It* by substituting the names of people they know who exhibit the same character traits as characters in the play (p. 42).

As computers enter the postsecondary English classroom, they have the potential to produce "educational contexts and classroom settings which turn outsiders into insiders" (Selfe, 1988, p. 7). In other words, most students in a noncomputer English classroom sit on the sidelines, outside of the learning dialogue, because even in classrooms where everyone sits in a circle students cannot physically join the conversation when the instructor seems to be having it with only a few enlightened students. All students in a computer-assisted English classroom have the facility to join the conversation by writing their responses on their computers where they will be read by several other students and the instructor as well. Some teachers in the CA class Selfe describes find it more appropriate to write messages to their students than to talk. Other teachers are uncomfortable coaching a class of writers and readers from the margin of the classroom or through the medium of the computer. They are at once forced to communicate through a different medium and from a different perspective. But Selfe notes this may be precisely the importance of teaching with computers.

A Computer-Assisted Model for Transacting with Literature

Although process models of instruction without the benefit of computers engage students in active, recursive writing and reading, computers facilitate the process model in several ways. This computer-assisted model is: (1) **nonjudgmental**, in that the computer provides a safe environment for everyone in the class to explore

responses to literature; (2) **cumulative**, in that students have a manageable and organized record of their responses over time which is useful for tracing their development of ideas and for offering both students and teachers insights to the class' reading and writing process; (3) **democratic**, in that each student responds, rather than the few vocal students in class; (4) **transformative**, in that both student roles and teacher roles change because the center of attention shifts--away from the teacher and away from the student--to the text which the students produce in response to their reading and the talk within the classroom; and (5) **dynamic**, in that the computer affords an easy manipulation of any text, affords writing between the lines, and affords filling in the gaps. Reinforced are two contentions of the transactional process model of literature study: texts are fluid symbol systems, and the meaning of a text is the "live circuit of language" between the reader and the text. Thus, the computer allows more complete exploitation of the features of a process model for every student and also the teacher.

In the computer-assisted reader-response model employed in this study, all students used word processing and wrote their responses to exercises which encouraged them to "perform with the text" as Rosenblatt suggests in *Literature as Exploration* (1983, p. 279). This performance with the text, facilitated with a microcomputer equipped with a simple word processing program, followed several stages with students: writing in preparation to reading; predicting possible outcomes of the text; exploring the implicit associations; making inferences explicit by writing between the lines and filling in the gaps; and writing notes to their classmates and their instructor. Through the computer-assisted exercises all students had to consider their own histories, beliefs, biases, prejudices, experiences, and hopes.

When this model is applied to the study of literature in a computer-assisted classroom, students write responses to prompts presented through different computer screens. Though each screen calls for a different activity, the screens share underpinnings from theory and research. The model illustrates the flow of activities (see Figure A).

This model illustrates an approach that can be used to study closely a small section or scene (illustrated in the next discussion) as well as for larger, more comprehensive work. The sequence of these activities from reader-oriented activities to text-oriented activities and back again is the crux of the model, rather than the specific activities themselves. Teachers of English will be able to create their own

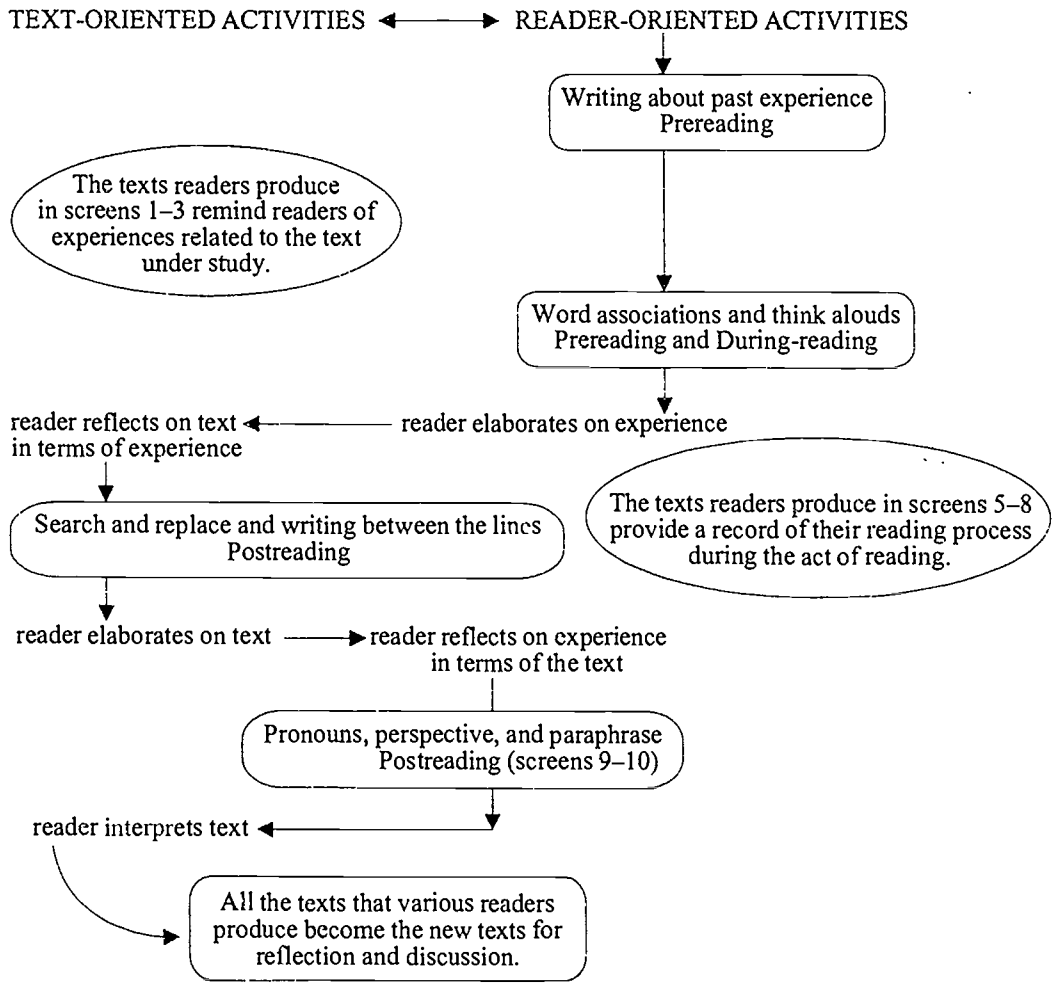

Figure A. A Computer-Assisted Pedagogical Model for Transacting with Literature. Adapted from Beach, R. (1990). Processes involved in relating texts and experiences: The creative development of meaning. In D. Bogdan and S. Straw (Eds.), *Beyond communication: Reading comprehension and criticism* (222). Upper Montclair, NJ: Boynton Cook/Heinemann.

activities which follow this interactive model, with prompts specifically related to the literature under study. Teachers should design enough screens (computer-assisted lessons) for students to manipulate the text under study, and can apply the sequence as many times, with as many different pieces of literature, as needed for students to create interpretations. Eventually, the texts that the students produce themselves can become the focus of study, the "literature" of the class. All the texts that various readers produce become the new texts for reflections and discussion.

The activities illustrated in Figure A mediate between text-oriented activities (on the left of the figure) and reader-oriented activities (on the right of the figure) so that students become more aware of their reading processes and the transactions that take place between themselves and the text. The first reader-oriented activities are prereading activities. These activities begin with the reader's life experiences and move toward experience of the text. They are prompts which the instructor has designed to call the student's attention to previous experiences and prior knowledge. The prompts are open-ended invitations for the reader to recall events in her life which move from general associations related to some aspect of the text to more specific associations related to the text under consideration.

The text-oriented activities are those which shift the reader's attention to features of the text, such as specific words, names, or places. Text-oriented activities are also those which call for a reader's elaboration of the perceived structure of the text or awareness of textual or stylistic features. While at first it may appear that the text and reader are far apart, the reader begins to recognize text events similar to her own experience, in the experience of her reading and in the experience of interacting with the text and with other readers. Slowly, she moves closer to the text and to formulating an interpretation. The flow of activities calls for increasing written interaction with the text.

Examples of the prereading exercises are in screens 1-3 (Figures B, C, and D) where the reader is prompted to write about a time in her life when she was in desperate need, a need similar to the main character's dilemma in the text that she will encounter.

When readers use their autobiographical connections to the events or ideas presented in a text, they are more likely to discover novel insights to the text. Screen two (Figure C) builds on this concept as it asks readers to write further about how the event they wrote about in screen one resolved itself or continued to unfold.

SCREEN ONE

Two-Minute Guided Freewrite

(Students will be the primary readers of the texts they write. They will select what they will share and the extent to which they will share it.)

Activity One: In the following exercises you will be asked to freewrite responses to questions which ask you to recall **how you felt** about a particular incident or experience from your life. The idea here is not only to describe the details of the event but especially your feelings or reflections about it. Please write as quickly as possible in order to let first associations come freely. The computer keeps track of time so you do not need to watch the clock. A friendly chime will remind you when time is up. You will have more time to reflect and adjust your responses.

Describe a time when you felt that your life was in danger or that you were going to be seriously hurt. You may consider something like an accident, an illness, a threat of punishment, or the possibility of emotional pain, or any other such situation. Write for two minutes about one such time when you felt your life was in danger or a time when you felt you were going to be seriously hurt.

Stop!

(The computer program will sound a chime to remind students to stop writing after two minutes and then the keys will not respond to further writing.)

Now read what you have just written. Take a moment to add or change anything you want. Use the **insert/delete** or **typeover** functions.

Figure B

SCREEN TWO

Autobiographical Sketch on Threat

Activity Two: Students begin the CA exercises with an autobiographical sketch or narrative in response to a prompt which the instructor gives them. This prompt is related to one or more of the elements in the text.

Many ways exist for resolving threatening situations or for making ourselves feel more comfortable in threatening situations. Write for two minutes about what strategies you have for resolving a threatening situation or of making yourself feel better in such a situation.

Stop!

Now read what you have just written. Take one minute to add or change anything you want. Use the **insert/delete** or **typeover** functions.

Figure C

SCREEN THREE

Freewrite on Purposes of Hardships

Activity Three: Students begin the CA exercises with an autobiographical sketch or narrative.

Certainly a serious accident, a serious illness, a threat of severe punishment, or the possibility of emotional pain are significant emotional events. Some believe these significant emotional experiences serve a developmental purpose in an individual's life. Do you believe they have served a purpose in your life? Why do you believe this? What sort of purpose do you believe they serve? Write for two minutes what you believe is true about threatening situations and their relationship to your life.

Stop!

Now read what you have just written. Take a moment to add or change anything you want. Use the **insert/delete** or **typeover** functions.

Figure D

Screen three (Figure D) asks students to interpret the event or events they have written about in the two previous screens. By interpreting the events in their own lives, students are primed to use their initial reactions and conceptions to gain insights to the text which they have not yet read. By doing such activities prior to reading, students are free of the pressure to produce the "right answer" or accept the appropriate literary interpretation.

In this part of the model, students are prepared to read the text as they read their own world. Schema theory would suggest that they are becoming conscious of their framework for understanding. The reader has recalled/related personal experience and has reflected on that experience and, in so doing, moves along the path toward her experience with the text. The computer saves each of the responses to these screens in files which are at the student's disposal for further writing assignments.

The next two screens move the reader from personal experience and her expression of that experience closer to the text itself. Screen four (Figure E) presents a situation parallel to that in the text and asks the reader to make a list of words she associates with it. The teacher designs general prompts to parallel the situation in the text to be read. After the student is finished with a list of key words, the computer presents a list of key words prepared by the teacher and selected from the text. The student responds to these words with her associations and compares the two lists, commenting on their similarities and differences. In doing this activity, "The reader infuses intellectual and emotional meanings into the pattern of verbal symbols, and those symbols channel his thoughts and feeling" (Rosenblatt, 1978, p. 25).

The next experience for the reader along the flow of activities is the experience of reading the text and elaborating on the experience in the text. Screen five (Figure F) presents the text itself and asks the student to write a short note to a friend telling how she feels about the unfolding story or any elements of the story. This note is then shared with another person in the class whom the student chooses. The sharing widens to include as many students as possible ending in a full class

SCREEN FOUR

Word Association

Activity Four: Students make a list of words which helps define their schema before reading the story.

Make a list of words you associate with personal conflict; conflicts in interpersonal relationships; conflicts in societal relationships. Now take a few minutes to list some words you usually associate with war.

Activity Extension: (After the student is finished listing her choices, the computer presents a list of words the teacher has selected from the text to be read by the class. The words are presented one at a time and when the student is finished writing, the response is saved and the next word is presented.)

Before we look at the text we are going to read today, let us consider these expressions.

First, write a synonym for each of the following words and then write whatever else comes to mind when you read each word:

bombardment
trench
prayed
shelling
girl
Villa Rosa

Stop!

Now read what you have just written. Take a moment to add or change anything you want. Use the **insert/delete** or **typeover** functions.

Figure E

SCREEN FIVE

Share your think-aloud

Activity Five: Students write the record of their thoughts as part of a CA dialogue. This writing is shared with or exchanged with one or more class members.

READING: In Our Time "Interchapter. VII"

Read the following text.

While the bombardment was knocking the trench to pieces at Fossalta, he lay very flat and sweated and prayed oh jesus christ get me out of here. Dear jesus please get me out. Christ please please please christ. If you'll only keep me from getting killed I'll do anything you say. I believe in you and I'll tell every one in the world that you are the only one that matters. Please please dear jesus. The shelling moved further up the line. We went to work on the trench and in the morning the sun came up and the day was hot and muggy and cheerful and quiet. The next night back at Mestre he did not tell the girl he went upstairs with at the Villa Rosa about Jesus. And he never told anybody.

Write a short note about what you think is going on in the story. Write as if you are telling a friend about the story you had to read for class. Write how you feel about the story, any element(s) of the story, or the story as a whole.

Figure F

discussion. This activity is similar to what Lytle (1982) and Beach (1990b) describe as a think-aloud. "Think-alouds with pairs of students, conducted prior to small or large group discussion, may help students articulate their initial response in preparation for the discussion. Think-alouds encourage complex thought" (Beach, 1990b, p. 66).

At this point the reader moves along the flow of activities toward text-oriented activities. This is where the reader reflects on the text in terms of her experience and continues to elaborate on the text in several ways. Screen six (Figure G) asks students to replace the highlighted names of people in the story with the names of

people they know who exhibit similar characteristics. Although these are usually people from the reader's real life, students can bring in the names of characters they have "met" in other literature. In this screen students are encouraged to change key words or any other element in the story to those which reflect their own experiences. Students use the word processor's **search** and **replace** function keys, or they simply type over the names. The computer saves both the original and the changed version of the story for later comparison. After the changes are complete, the student writes a note to the instructor commenting about the way the names or words influence the

SCREEN SIX

Replace names of characters, key words, or place names.

Activity Six: Students replace the names of characters in the story with the names of people they know who exhibit similar characteristics. In this activity, students are also encouraged to change any other elements such as place names or key words in the story to those they have had experience with. Then they are asked to reflect upon those changes.

Use the insert function or typeover function to replace the highlighted words or phrases with words more familiar to you or with words that you think are more contemporary.

While the **bombardment** was knocking the **trench** to pieces at Fossalta, he lay very flat and sweated and **prayed** oh **jesus christ** get me out of here. Dear jesus please get me out. **Christ** please please please christ. **If you'll only keep me from getting killed I'll do anything you say.** I **believe in you** and I'll tell every one in the world that you are the only one that matters. Please please dear jesus. The **shelling moved further up the line.** We went to work on the trench and in the morning the sun came up and the day was hot and muggy and cheerful and quiet. The next night back at **Mestre** he did not tell **the girl he went upstairs with** at the **Villa Rosa** about Jesus. And he never told anybody.

Activity Extension: Write a short note to your instructor about the way changing the highlighted words changes the meaning of the story.

Figure G

meaning of the story. By retelling the story in their own language, students acquire literary language through which they discover meaning (Bruner, 1986). In this note to the instructor, students begin to use such literary terms as *plot, character, symbol,* and *narrator.*

Moving along through the text the reader is asked, in screen seven (Figure H), to write between the lines or insert writing into the text where a character heretofore unheard expresses himself or herself. The student must speculate about a large range of behaviors and belief systems for that character. This amounts to role-playing on the video display. When readers are given the chance to role-play they are often better able to empathize with a character's experiences. This ability is important to higher level thinking (Beach, 1990b). The student is also encouraged to write between-the-lines what she feels she has to contribute "between-the-lines" in

SCREEN SEVEN

Write between the lines

Activity Seven: Students write between the lines or insert writing into a text where a character or characters heretofore unheard express themselves.

Read the text again, but this time mark with an asterisk places where you feel you need to read between the lines or between the words. Then go back to these places and write what you had to "read" between the lines or words.

While the bombardment was knocking the trench to pieces at Fossalta, he lay very flat and sweated and prayed oh jesus christ get me out of here. Dear jesus please get me out. Christ please please please christ. If you'll only keep me from getting killed I'll do anything you say. I believe in you and I'll tell every one in the world that you are the only one that matters. Please please dear jesus. The shelling moved further up the line. We went to work on the trench and in the morning the sun came up and the day was hot and muggy and cheerful and quiet. The next night back at Mestre he did not tell the girl he went upstairs with at the Villa Rosa about Jesus. And he never told anybody.

Figure H

order to understand the story. Writing between the lines in this way calls upon the students' experiences with other texts or from their own lives.

While screen six begins with close attention to the text, screens seven and eight move back toward reader-oriented activities. Screen eight (Figure I) asks students to retell the story by reducing it to its key components or rearranging story elements. Then students write a note to a classmate explaining their choices. Students use the **delete, insert,** and **text move** functions of the computer program to manipulate the text. This activity prepares students for the more closely text-oriented activities in screens nine and ten (Figures J and K).

Screen nine (Figure J) asks students to identify pronouns which can convey a certain narrative perspective or point of view. The students are asked to explain

SCREEN EIGHT

Reduce and Retell

Activity Eight: Students retell the story by reducing it to its key components or rearranging story elements. They use the delete function to eliminate all but the three or four most important sentences--sentences which still tell the story. Then students write a note to a classmate explaining their choices.

While the bombardment was knocking the trench to pieces at Fossalta, he lay very flat and sweated and prayed oh jesus christ get me out of here. Dear jesus please get me out. Christ please please please christ. If you'll only keep me from getting killed I'll do anything you say. I believe in you and I'll tell every one in the world that you are the only one that matters. Please please dear jesus. The shelling moved further up the line. We went to work on the trench and in the morning the sun came up and the day was hot and muggy and cheerful and quiet. The next night back at Mestre he did not tell the girl he went upstairs with at the Villa Rosa about Jesus. And he never told anybody.

Write a short note to someone in your class explaining why these are the sentences you chose to keep.

Figure I

SCREEN NINE

Identify Pronouns and Perspective

Activity Nine: Students identify pronouns in the story in order to assume the perspective of the text. Then they retell the story from a different perspective.

Notice the subjective personal pronouns in the story. Describe who is telling the story. Explain how the story reflects the perspective of someone who is near or far away from the main character.

1 While the bombardment was knocking the trench to
2 pieces at Fossalta, he lay very flat and sweated and
3 prayed oh jesus christ get me out of here. Dear jesus
4 please get me out. Christ please please please christ.
5 If you'll only keep me from getting killed I'll do
6 anything you say. I believe in you and I'll tell every
7 one in the world that you are the only one that matters.
8 Please please dear jesus. The shelling moved further up
9 the line. We went to work on the trench and in the
10 morning the sun came up and the day was hot and muggy
11 and cheerful and quiet. The next night back at Mestre
12 he did not tell the girl he went upstairs with at the
13 Villa Rosa about Jesus. And he never told anybody.

How do you explain the shift in pronouns from third person (he) to first person (I) in line nine? Use the **typeover** function to change the third person subjective pronouns (he, she, they) to first person subjective pronouns (I, we). How does this affect the story? Rewrite the story from one of the other potential perspectives. For instance, write how Jesus would tell the story or how "the girl at the Villa Rosa" would tell the story.

Figure J

how near or far the narrator is in relation to the main character. Then they are asked to rewrite the story from the perspective of another character. This activity and the one that follows are located on the model directly between text-oriented and reader-oriented activities because each activity calls for a close attention to the text while also calling on the student to display some of her reading between the lines ideas to recreate large parts of the story if not the entire story.

Screen ten (Figure K) asks the reader to write a paraphrase for each of the ten sentences which comprise the original story.

After they have finished writing the paraphrases, students write a note to a classmate describing the work they have done to complete the activities in screens eight through ten. The object here is to focus on the transaction between reader and text. The reader's writing and that of her classmates become the new text to be studied. Not only do these paraphrases provide a springboard for further writing, but students also have a wealth of information about the transactions with the text. Most important, they have a richer understanding of their reading and writing processes, with a visible record of how they brought meaning to the text. Thus, the negotiation/transaction process is made explicit.

The reader benefits from the activities in this model because she makes her own meaning and she becomes aware of her thinking process. She is actively pursuing the creation of meaning rather than receiving meaning. As Probst says, this process forces the reader to be active: "to create himself intellectually as he reads; to be both a participant, feeling and thinking, and an observer, watching himself feel and think" (1988, p. 24). In this way, the activities in the model encourage complex thought and foster higher levels of interpretation. In this model, each student is encouraged to relate prior texts to current texts and enter into a dialogue with the text. In sharing their responses with their classmates and their instructors, students learn that while their responses are highly individual, they are also part of a larger social fabric because "readers learn the particular ways of responses, attitudes, interests, and roles unique to their communities" (Beach, 1990b, p. 73).

SCREEN TEN

Paraphrase

Activity Ten: Students will write a paraphrase for each of the sentences of the story. Then they will exchange places with someone else in the room, read the other student's screen, and write a response to that student's paraphrase.

After each sentence write a paraphrase:

- While the bombardment was knocking the trench to pieces at Fossalta, he lay very flat and sweated and prayed oh jesus get me out of here.
- Dear jesus please get me out.
- Christ please please please christ.
- If you'll only keep me from getting killed I'll do anything you say.
- I believe in you and I'll tell every one in the world that you are the only one that matters.
- Please please dear jesus.
- The shelling moved further up the line.
- We went to work on the trench and in the morning the sun came up and the day was hot and muggy and cheerful and quiet.
- The next night back at Mestre he did not tell the girl he went upstairs with at the Villa Rosa about Jesus.
- And he never told anybody.

After you have finished writing your paraphrases, trade places with someone in the room. Read the work your classmate has done to complete screens eight through ten and write a note commenting on the paraphrase. Take a moment to add or change anything you want. Use the **insert/delete** or **typeover** functions.

Figure K

The teacher has a different role in the transactional computer-assisted English class. The class is student-centered; this does not mean the teacher does not have an active role. Teaching activities still must be as carefully prepared as any literary lecture. Pritchard (1993) gives several cogent suggestions for designing prompts applicable to this model in her article, "Developing Writing Prompts for Reading Response and Analysis." Pritchard's suggestions grow from her convictions that teachers should value students' responses, interests, and backgrounds as much as the text, the author, and the teacher's interpretations. She does not suggest that the teacher in a reader-response literature class allows that anything goes. Pritchard calls the reader-response teacher an "informed reader" or a "more sophisticated reader" and, as such, a teacher's goals are threefold: to provide a broader base for reflection and interpretations, to provide students with a safe environment (a scaffolding) for exploring their beliefs and interpretations, and to provide for an aesthetic reading experience which engages students both cognitively and affectively (p. 25).

With these goals in mind, Pritchard presents guidelines for teachers to follow when they design prereading, during-reading, and postreading prompts for entries into students' literary journals. The prereading prompts should encourage curiosity, activate prior experiences and feelings, help students connect personally with characters, themes, or issues, and predict events, story structures, and character behavior. To accomplish these purposes, Pritchard suggests that teachers allow students to choose from among several prompts, always assign a written response generated from the prompt so that a record is made, sometimes pull out telling passages as a preview, and sometimes select a piece of music, evocative artwork, or other nonprint media to lead students into a reading (p. 25).

The during-reading prompts encourage students to observe literary features and conventions, to keep a list of personal responses and impressions, to consider what the author had to know in order to write the work, to identify character changes and plot development, to formulate generalizations, and to reconsider one's predictions and prior opinions and impressions. Teachers can accomplish these purposes by designing prompts which connect with the prereading prompt responses.

During-reading prompts should be kept to a minimum so that the flow of reading is not too disturbed. The responses can be reviewed in the postreading activities. Among the other general tips for writing during-reading prompts, Pritchard suggests that teachers use explicit verbs like *list, circle, count, underline,* or *bracket* to identify features or certain sections of longer texts which stimulate a particular response. Carefully designed during-reading prompts help students to discover inductively how writers write and what particular writers needed to know in order to write the text under study (p. 27).

The postreading prompts challenge students to translate basic themes into modern contexts, to realize how one's opinion can change during and after reading, to create events which might have occurred prior to the story beginning, to consider minor characters' contributions to the story's total meaning, to find larger themes, and to make comparisons with other works. Postreading prompts ask for reflective reviews of the responses readers have written, emphasize a wide range of interpretations and types of writing (expressive and expository), and ask students to look into themselves, to reread the text closely, and to make assumptions about the author (p. 28).

The teacher's role in the process model of instruction, which gives rise to a transactional computer-assisted English classroom, is complex. As Pritchard points out, the teacher is involved with establishing habits of mind, ways of reading and studying literature which are aesthetic rather than efferent. To do this, the teacher designs prompts that guide students from their experiences of life to and through their experiences with reading the text. The computer facilitates these activities better than pen and paper because the electronic screen affords a malleable text which can be manipulated as the teacher needs. But more than this, the computer reinforces the idea that the text is a fluid symbolic system, subject to change and reading between the lines. This reading between the lines becomes writing between the lines at a computer screen. In this way the implicit reading processes become explicit. The student has a record of her various responses as she actively participates in making meaning. She learns to observe her reading process and to

create herself intellectually as she reads.

Defining Characteristics

In summary, the defining characteristics which comprise this transactional computer-assisted model for literature instruction are that the model is

1. **computer facilitated**, in that the microcomputer affords an easy manipulation of the text and an explicit record of reading, while reinforcing the idea that texts are fluid symbolic systems;
2. **process oriented**, in that it emphasizes the mind's interaction, or better, transaction with the world where knowledge is not fixed, but changes and grows;
3. **student centered**, in that students are actively engaged in making meaning from their life experiences and their experience of reading and responding to literature;
4. **recursive**, in that it moves from student to text and back again to student;
5. **democratic**, in that the individual student is valued along with the learning community;
6. **generative**, in that while they are working with literary texts, students generate other texts which become the focus of instruction; and
7. **adaptable**, in that it can be applied to literary and nonliterary text.

Application of the Model: The Computer-Assisted English Class

This study proposes a model of instruction that builds on the theoretical principles of reader-response literary theory, particularly that of Louise Rosenblatt, not in a prescriptive way, but in a way which demonstrates how one teacher used the context of a computer-assisted English classroom to facilitate a developing transactional practice. The model has been implemented with nearly 1,000 students while the researchers explored the theoretical base and developed lessons. This model can be implemented where computers are already in place, where students are using writing to respond to their reading, and where a healthy self-consciousness about one's own reading and writing practices is respected and encouraged.

The following excerpt is from a student journal kept in the CA literature class:

> I not only thought about the story, I made a conscious effort to realize the thought processes I go through when I read, and thought about how different each individual's perspective-experience-thought processes affect their [*sic*] comprehension of the same text.

In the CA postsecondary classroom described herein, the students were actively engaged in discovering their response patterns to become aware of how they shape their own perceptions through their past experiences and present preoccupations.

The setting for an application of this model was a moderately sized public university. The class was comprised of average ability, second semester, first-year college students. Each student had an IBM microcomputer, located at long tables which formed a U around the periphery of the room; each computer was equipped with a word-processing program. After six classes into the semester, all students were familiar with the basic word-processing functions used in this study, and they had all written one response essay. At the end of every class period during the study, the researcher saved enough time to allow students to write notes about what they did in class that day. The student responses to the class lessons, their notes to their instructor, the journal entries students wrote outside of class, and the instructor's class log, along with the disks of completed exercises, provided the data for examining an application of the model.

In creating these exercises, the researchers turned to Robert Scholes's *Textual Power: Literary Theory and the Teaching of English* (1985). In the second chapter, "The Text in the Class II," Scholes suggests how we might encourage students to "recognize the power texts have over them and assist the same students in obtaining a measure of control over textual processes, a share of textual power for themselves" (p. 39).

Following Scholes's suggestion to use Interchapter VII from Hemingway's *In Our Time,* twenty-five floppy disks were prepared with the texts stored as files. The

In Our Time unit was planned for three fifty-minute class periods. On the first day of this unit, students were asked to call up the file "In Our Time," read it, and write a note describing what they felt while they read the story. Then they were told to go back to the story and to highlight the words which helped them locate the story in time and place, also highlighting any other words they considered key. After they were finished with this, they could type over these highlighted words with words closer to their own experience. Next they wrote a note to the instructor explaining why they chose the particular words they highlighted and the words to replace them. Furthermore, the students were asked to substitute their own names or names of people they knew for characters in the story by using the **search** and **replace** functions. Students were encouraged to think of a person they know well who has personal qualities similar to the character in the text they were reading. Simply using **search** and **replace** functions to change characters' names to the names of the persons they know makes rereading the story more immediate, and it reflects the underlying analyses students do to draw a parallel between text and experience. This exercise allows students to make connections with what they are reading in a personal and visible way.

Following are two files which a student created to record the first day's activity. In Figure L the original text is shown with the student's underlining of the key words. This is followed by her note to the instructor about her reasoning.

Then, Figure M includes her use of the **search** and **replace** functions. The original Hemingway text appears with the student changes in bold. Next is a brief note which explains her conclusions.

The second day students were asked to load a different file from their disks. In this file Hemingway's story was reformatted so that each sentence stood separately. The students were asked to rewrite each sentence to reflect their understanding of what was happening on the surface and what they felt was going on implicitly. Then they were asked to trade places with someone else in the room when they had finished writing all they wanted. Once at their partner's computer, the students were instructed to read all the sentences--Hemingway's and the

(Student's underlining of key words.)

While the bombardment was knocking the trench to pieces at Fossalta, he lay very flat and sweated and prayed oh jesus christ get me out of here. Dear jesus please get me out. Christ please please please christ. If you'll only keep me from getting killed I'll do anything you say. I believe in you and I'll tell every one in the world that you are the only one that matters. Please please dear jesus. The shelling moved further up the line. We went to work on the trench and in the morning the sun came up and the day was hot and muggy and cheerful and quiet. The next night back at Mestre he did not tell the girl he went upstairs with at the Villa Rosa about Jesus. And he never told anybody.

Note: In the above paragraph, the words bombardment, trench, and getting killed indicate the story may be taking place during World War I; the phrases in the morning and the next night suggest a time span of three days. Fossalta and Mestre denote geographic location (probably Spain or Italy). Fossalta could be the area of the fighting; Mestre would be a friendly or neutral town. Villa Rosa and hot and muggy evoke visions of summer in the Mediterranean.

Figure L

(The student changes are in boldface.)

Pinned under a barrage of machine gun fire while the deafening sound of exploding mortars surrounded him, Gary lay very flat and sweated and prayed oh jesus christ get me out of here. Dear jesus please get me out. Christ please please please christ. If you'll only keep me from getting killed I'll do anything you say. I believe in you and I'll tell every one in the world that you are the only one that matters. Please please dear jesus. **The sounds of death slowly faded into the night. Gary and Steve went back to work barricading the airstrip** and in the morning the sun came up and the day was hot and muggy and cheerful and quiet. The next night back at the border **Gary** [did] not tell the girl he went upstairs with at the **hotel** about Jesus. And he never told anybody.

Note: War is timeless. Man is forced to face death and sometimes reaches out to God in his moment of desperation. This story reminded me of some friends I have who told me about their time in Viet Nam. That's the only war I know anything about, but they're all the same.

Figure M

partner's--and write a note to their partner about what she had written. Figure N shows how one of the students responded.

The selected passages reveal a progression of responses from the student's efforts at imagining and recreating the setting, to her analysis of the character, and on to her evaluation. This student moves from simply retelling the story, to an analysis of elements in the story, and on to a synthesis of elements in the story and her own personal experiences. While she begins by extracting facts from the text, she, later, engages with the text both emotionally and intellectually. The computer makes this possible because it records her responses almost simultaneously with her thinking, reading, and writing processes. This is important because once the student

(Student's responses are in boldface.)

While the bombardment was knocking the trench to pieces at Fossalta, he lay very flat and sweated and prayed oh jesus christ get me out of here. **I see a soldier lying face down in a muddy trench with his hands grasping the back of his head. Bombs are exploding all around him and he is frightened by the nearness of death.**

Dear jesus please get me out. **The soldier is thinking about his situation and is feeling helpless.**

Christ please please please christ. **The reality of the situation is more apparent as the bombing continues. Death is close and the soldier knows he has no control over his destiny. His heart is beating faster.**

I believe in you and I'll tell every one in the world that you are the only one that matters. **I'd do anything to get out of this mess.**

The next night back at Mestre he did not tell the girl he went upstairs with at the Villa Rosa about Jesus. **The soldier held a secret he was ashamed to share. In a moment of weakness he had begged God to save him.**

And he never told anybody. **He buried the broken promise deep inside; on the outside, nothing had changed.**

Figure N

understands how she makes meaning on her own, she understands how her experiences, prior knowledge, and discussions all contribute to her unfolding understanding. Thus, the student is less likely to be satisfied with what the teacher alone tells her is important in the story. The student is relieved of the burdensome game where the teacher knows the answers and the student must try to pull from the texts what the teacher expects.

The third day the text was displayed on a large screen at the front of the classroom using an overhead video display, and the class and instructor worked together to bracket the words before and after about five places in the text where they thought they had to read between the lines. These places were called *gaps*. The students were asked to turn to their own video displays and to fill in the gaps by placing their cursor where they thought the gap began; then, using the **insert** function of the word processor, they were to write between the lines. Figure O provides a student response to exercise three, along with a note written to the instructor.

(Student text is in boldface.)

Exercise three as completed by a student. The boldfaced text is what the student wrote following the instructions as described above.

While the bombardment was knocking the trench to pieces at Fossalta, **(There is a gap here where the details of the war and information on the soldiers background may have been established.)** he lay very flat and sweated and prayed oh jesus christ get me out of here. Dear jesus please get me out. Christ please please please christ. If you'll only keep me from getting killed I'll do anything you say. **(There is a gap here where the soldier thought about what he had to offer God or considered what God might want from him.)** I believe in you and I'll tell every one in the world that you are the only one that matters. Please please dear jesus. **(In this gap the soldier moved from feeling terrified and desperate to gradual calmness and the realization that he had survived the attack.)** The shelling moved further up the line. **(This gap represents the time of initial recovery from the shelling: caring for the wounded, gathering the dead, assessing the damage, etc.)** We went to work on the trench and in the morning the sun came up and the day was hot and muggy and cheerful and quiet. **(This is a gap of physical time in which the routine of war continued and those who survived the night reflected on the reality of war and were relieved to still be alive.)** The next night back at Mestre he did not tell the girl he went upstairs with **(In this gap the soldier was searching for another way to escape the insanity of his situation.)** at the Villa Rosa about Jesus. **(The gap here was left so that assumptions about the soldier's character could be formed (broken promise to God, sleeping with a presumed prostitute, etc.)** And he never told anybody. **(The final gap leaves room for the reader to imagine what happened to the soldier as a result of or in spite of his experience in the trench.)**

Note: In the discussion in today's class, it was apparent that each individual had different perceptions of the author's work; largely affected by personal views of war, sex, and religion. In trying to fill in the gaps [while using the computer] I found my own thoughts going in several directions: trying to imagine what Hemingway saw as background, and with each reading, seeing the story from different views (like the various "God save me from man" scenes in other books or movies). The beauty of this exercise is the ability of the reader to interpret the story according to his own thoughts and needs.

Figure O

Implications and Recommendations for Research

The model this study presents evolved from an interest in the confluence of process approaches for teaching writing, reader-response literary theory, and computer-assisted instruction. Technology has entered classrooms before, but computer technology offers unique challenges because of its ubiquitous presence at every level of education as well as business and industry. Computer literacy promoted through schools is a special interest in Japan, Great Britain, France, Italy, and nations from the former Soviet Union (Foster, Thomas, & Frase, 1989, p. 287). Leaders in government and education at every level will need to address how to capitalize on this "real world" learning environment and expand ways to fund computers in schools.

When used as this model suggests, computers in the classroom can facilitate rethinking of the nature and roles of teachers and students. This model guides the instructor away from software programs which are simply electronic question-and-answer games or electronic literary databases, to programs which are open-ended and interactive and which offer the opportunity for both cognitive and affective student engagement. This dual engagement is important because concepts are first shaped through our senses and our emotional experiences. Fitzclarence and Giroux's "The Paradox of Power in Educational Theory and Practice" (1984) is instructive at the juncture of English and computer technology. In the critical pedagogy they discuss, teachers develop forms of knowledge and classroom social practices that work with the experiences students bring to school. This demands taking seriously the language norms, styles of presentation, dispositions, forms of reasoning, and cultural forms that give meaning to students' experiences. Therefore the process of a teacher's redefinition of his or her role in a reader-response, computer-assisted class is an important topic for further research.

The process of students redefining what constitutes a "good reader" of literature in a reader-response CA class also needs to be investigated. Writing responses to a text displayed in a sequence of computer screens enables students to

be more in control of their learning by increasing their awareness of their response behaviors, which in turn affects their responses as they read and write about what they read. A "good reader" in this atmosphere, then, may vary from traditional definitions.

Formal investigations using the activities in the model may provide clues to a student's misreading and demonstrate the rewards of rereading. The CA transactional model has the potential to develop higher order thinking skills by allowing the students to see how they shape meaning with the literature they are reading. Studies are needed to investigate this idea.

Other questions which might be addressed in further investigations include: What insights are provided when the model is applied to student essays which are read as part of a composition class? How does the model affect the composition strategies of students in writing classes? How does experience with the model affect the teaching strategies of student teachers? How does the experience with the model affect teachers who do not have access to computers? What affects do technological advances such as hypercard files, interactive video, CD-ROM access, electronic bulletin boards, telecommunication links, and local area networks have on implementing the model? What is the most desirable software for delivering the model? How can the model be adapted for texts outside the English discipline? How can the model be adapted for writing-across-the-curriculum programs?

Because the computer-assisted English classroom may be more complex than many expect, different models of research are needed to explore its full potential. As Rosenblatt (1988) explains:

> The old dualistic experimental research design, with its treatment of student and text as separate entities acting on one another in a presumably neutral context, cannot suffice for the questions and hypotheses that the transactional paradigm presents. Although the experimental model may still have its uses, extrapolation of results to practical situations should be very cautious. Moreover, no matter how

much we may generalize quantitatively about groups, reading and writing are always carried on by individuals. If research is to serve education, the linguistic transaction should be studied above all as a dynamic phenomenon in a particular context, as part of the ongoing life of the individual in a particular educational, social, and cultural environment. We need to learn how the student's attitudes and self-understanding are formed and enter into reading and writing events. Increasing interest in this area is evident in the use of the case study and ethnographic methods. Research methodologies and designs will need to be sufficiently complex and sufficiently varied and interlocking to do this. (p. 28)

Good instructional models come out of good classroom experiences. This model developed out of a need to solve a pedagogical problem. Influencing the model were positive experiences with writing-across-the-curriculum practices and strategies described by reader-response theorists. The most success with the model derived when the exercises described were used in the first week or two of the semester or at the introduction of a new genre for consideration--for instance, when moving from the study of poetry to the study of short fiction. However, the computer may also be an integral part of every class meeting if one takes a writing workshop approach to literature as Evans (1992) describes or if students are asked to write prior to reading, during reading, and after reading as Pritchard (1993) suggests. Whether the computer is used daily or only to introduce special units, this study indicates that computer exercises found their most compatible application in courses where the study of literature was combined with reading and writing. The natural connections between reading and writing are exploited in the computer-assisted pedagogical model proposed in this study.

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