

## ROLES FOR COMPUTERS IN THE ENGLISH LANGUAGE TEACHING

**Dr. Prashant Raosaheb Shinde**

Assistant Professor and Head, Dept. of English,  
Shivneri Mahavidyalaya, Shirur Anantpal, Latur, Maharashtra, India  
Email- [Shindeprashantr@gmail.com](mailto:Shindeprashantr@gmail.com)  
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### **Abstract:**

*New information technologies, such as computers and electronic networks, are currently being applied in all aspects of English language teaching. These broad applications raise the question, "What role should these technologies play in teaching and learning?" This report discusses examples of applications grouped into five roles: (a) tutor, (b) tool, (c) ways to explore language, (d) medium, and (e) learning environment.*

**Keywords-** *ICT, e-tutor, English language, etc.*

### **Introduction:**

Computers and other new information technologies such as video, telecommunications, and speech synthesis play an increasingly important role in English and language arts instruction. Ubiquitous and multifaceted information technology is beginning to reflect all traditional teaching topics, methods, and goals. Therefore, research into its use in classrooms must consider a wide range of possible roles for this technology.

A narrow conception of the use of computers in the teaching of English language arts today would see the computer as a device with some well-defined function, such as practicing basic skills. Within this framework, it would make sense to critically examine the research that has been conducted specifically on computer use in order to identify programs that are most effective and student populations that could be most helped. One would look for evidence of the effectiveness of this technique compared to other technologies, such as using filmstrips to learn about famous authors or playing word games as a way of building vocabulary.

A broader view sees computers as flexible tools that can be used in such a variety of ways that the fundamental question shifts from "Are computers good for English

language arts?" on "How can computers be used to achieve educational goals?" or "How are computers used?" Rather than looking at technology as a new method to be evaluated in Toto, we need to first focus on core educational issues and then ask what role technology can best play in each particular area. A computer program for teaching beginning reading that uses the phonics method would then be examined in relation to other approaches to teaching beginning reading and only incidentally to other computer programs. This report introduces five such roles for a computer.

### **A role for the computer**

Computers are used in classrooms to teach composition, literature, decoding, reading, comprehension, spelling, vocabulary, grammar, usage, punctuation, capitalization, brainstorming, planning, reasoning, outline, use of references, study skills, rhetoric, handwriting, drama and virtually every other area of language arts. There are also programs specifically designed for preschool, elementary, upper elementary, middle school, high school, and college students, as well as adult, English as a second language, foreign language, bilingual, and special classes.

These large-scale applications of technology raise the question, "What role should computers play in teaching and

learning?" Some of the most important research on the use of computers in English language arts has been compared to other research on computers in education in an attempt to answer this question. This work was a process of discovery and sometimes contention between opposing camps. There are different ideas about whether, why and how computers should be used for teaching.

Turkle (1984) suggested that computers behave like Rorschach inkblots in the way they elicit different responses from people. They argue that these answers say more about people than computers. Similarly, the ways in which computers are used in schools reveal more about conceptions of learning than about what computers can or cannot do.

Below are some possible answers to the question of how computers should be used (see also Dede, 1987; Taylor, 1980). Each of them is indexed not only according to the characteristics of the technology, but also according to the assumptions about entrepreneurship in education. Computers can therefore be, depending on educational requirements:

1. Tutors: Can individualize instruction, deliver learning material at a controlled pace, and record student progress.
2. Tools: Assist reading, allow students to easily create and format texts, facilitate revision of texts, and check for spelling errors. They store a variety of information that students need, from styles to encyclopedic data, in a compact and easily accessible format.
3. Ways to explore language: They make the patterns, beauties and difficulties of language something that students can explore and communicate in new ways.
4. Media: Enables new ways of communication and "hypertexts" or "hypermedia" that allow interweaving of tables, charts, graphs, images, sounds, video and text.

5. Environments for communication: They are a new social area that enables new forms of meaningful communication and rebuilds relationships between students and teachers.

It is not possible to present a comprehensive and concise overview of computer use in each of these roles. Instead, this report presents some representative uses as a way of suggesting possible directions. Because the use of computers continues to evolve rapidly, the examples represent categories of applications, not necessarily formal research studies of classroom effectiveness. There should be more such studies because the few that do exist highlight the variety of positive and negative effects that computers can have.

#### **Computers as tutors**

Artificial intelligence research has led to the specification of criteria for "intelligent tutoring systems" (Neuwirth, 1989). An intelligent lecturer should be able to carry out the taught task and discuss it articulately. Thus, a spelling teacher should be able to correct typos and identify them as examples of general spelling rules. A second important requirement is to represent the student's evolving knowledge so that misconceptions can be diagnosed and appropriately addressed. Third, the system should have strategies for teaching. It should know how to present material, how to pose problems, and how to strike an appropriate balance between instructor guidance and encouraging student-led inquiry.

It is no wonder that designing an intelligent language learning system is difficult. Few such software exist today, and the most successful computer-based teachers have been designed for well-restricted topics in math and science. One such language program is Iliad (Bates & Wilson, 1982), which was designed to tutor deaf children who have difficulty mastering language forms such as negation and question formation (see Knapp, 1986, for a discussion of computer use for other special needs). Iliad can

generate syntactic variations of a key clause. For example, from the sentence "John ate the apple", the Iliad can generate:

Did John eat the apple?

What did John eat?

Who ate the apple? etc.

The tutoring component asks the child to perform similar transformations and comments on the result. In principle, the Iliad could be extended to allow children to design their own transformation rules, either through simple grammar notation or through examples. So a child might suggest, "Which apple did John eat?" as a new transformation of "John ate the apple" and then test it on other sentences. A child enters "Mary sees a cat," and the system uses a rule to produce "Which cat did Mary see?" A related program is VP2 (Schuster, 1986), which tutors non-native speakers of English. It includes an explicit model of the student's developing grammar.

There are hundreds of tutoring programs that do not qualify as intelligent tutoring systems. These programs are designed to teach letters of the alphabet, spelling, vocabulary, synonyms and antonyms, grammar, punctuation, capitalization, and word usage. They are useful for developing skills in these areas, but extensive reliance on them can interfere with a larger need: helping students learn to use language in its full forms purposefully (Warren & Roseberry, 1988).

#### **Computers as Tools:**

**Word processing** (see Olds, 1985) has become such a common part of English and language arts instruction that some people now take it for granted and say, "We're just doing word processing; when are we going to really use the computer?" Of course, word processing is a real use of the computer and has an important function, even if it only helps with the practical details of creating and sharing texts in the classroom. In addition, there is some, albeit mixed, evidence that by making it easier for students to compose and

revise, see text problems, and share texts, they learn to be better writers and readers (Bruce & Rubin, in press; Collins & Summers, 1989; Daiute, 1985; Levin, Boruta, & Vasconcellos, 1982; Michaels & Bruce, 1988; Roblyer, Castine, & King, 1988; Rubin & Bruce, 1985, 1986; Wresch, 1984).

There are now hundreds of word processing programs that allow writers to enter and edit text. Some, such as Bank Street Writer (Scholastic), present menus of features for the writer to choose from, making the system easy to learn and use, but with some sacrifice of flexibility. More sophisticated programs such as Word bench (Addison-Wesley) allow authors to control details of text format, provide access to indexed notes, and have options for tables of contents, lists, footnotes and endnotes, bibliographies, and indexes.

**Reading Aid:** But word processing is only one way computers serve as tools for writing and reading (see Wresch, 1988). Speech synthesizers or stored speech programs now assist readers who encounter unfamiliar words (McConkie & Zola, 1985; Rosegrant & Cooper, 1983). Online dictionaries help with word meanings. Hypertext systems, which allow the storage of multiple linked texts, can provide additional explanations, additional examples, or comments on a given text, as shown in the Computers as Media section.

**Idea generation and planning:** It is in the field of writing that we find the widest range of instrumental use of computers. Several software programs have been designed to assist with planning and idea generation tasks (see Pea & Kurland, 1986). One program, called CAC, offers advice to students on how to compose persuasive writing. For example, a student might ask for advice on choosing the next sentence. The computer suggests actions based on keywords it finds in previous text written by the student. Several word processing programs have the ability to turn off the screen while typing so that the student

is not distracted by the visual image of what is being typed. This technique is called "invisible writing" (see Marcus & Blau, 1983). It is one way to facilitate "free writing" (Locket, 1973) and encourages students not to focus prematurely on editing. Idea generation activities are part of many other programs such as (a) Seen (H. Schwartz), a program focused on literature; (b) Writer's Helper (Conduit), which displays a tree of ideas created by the writer; (c) Writing Workshop (Milliken), which includes three prewriting programs; and (d) Writing a Narrative (MECC), a tutorial on narrative structure and point of view.

Computers also offer the ability to move text in different ways and view it from different positions. For example, outlining programs such as More (Symantec) allow authors to create hierarchical structures for ideas. These programs became known as "idea processors".

Information retrieval: A database of information allows students to browse text as a method of stimulating their reading and writing. Extensive databases are now available on compact disc. These include dictionaries (such as the Oxford English Dictionary), encyclopedias (such as Grolier's) and complete statistics from recent Olympic Games. The NeXT computer comes with its own built-in library, including a thesaurus, dictionary, and the Oxford Complete Works of Shakespeare. There are also many microcomputer-based databases, such as Australia's Bushrangers (KnowWare), which allow students to explore new worlds of information.

Text Viewing: One program included in Writer's Workbench (AT&T Bell Laboratories) removes all text except headings and paragraph beginnings and endings, giving the writer a clear view of text transitions. Similar features in Writer's Assistant (Interlearn) allow the user to see only the first sentence of each paragraph, or

to switch between a sentence-by-sentence format and a conventional paragraph layout.

Seeing text where each sentence begins at the left margin makes it easier for writers to spot problems with capitalization, punctuation, run-on sentences, sentence fragments, repetition, sentence beginnings, and other technical points. The English (Technology Training Associates) electronic manual provides a related kind of help: It is an on-screen reference tool that allows authors to access usage rules and examples during the creation process.

There are other programs to support composition within a genre or mode of discourse, such as poetry. These include poetry generators such as Computer poem (Marcus, 1982) and Poetry Prompter (Interlearn). Other programs assist in analyzing or revising a poem. The Poetry Processor (Newman, 1986) assists the developing poet by displaying a line of a poem in a designated meter. For example, the first line of Shakespeare's Sonnet 18 (in iambic pentameter) would look like this:  
Shall I compare you TO A SUMMER'S DAY?

If the student wanted to try the same line in trochaic pentameter, the program would show:

SHOULD I COMPARE YOU TO A SUMMER'S DAY?

After reading the line, the student can choose to rewrite the line or change the meter.

Writer's Workbench includes more than 40 programs that provide feedback on spelling, diction, style, and other text features. The interactive version of the program works in a text editor. It suggests the correct spelling of words and automatically replaces them if the author wishes. The Writer's Assistant (Levin, Boruta, & Vasconcellos, 1982), checks spelling and other features and allows students to try different combinations of sentences. Epistle (IBM) has a parser that detects complex linguistic problems such as subject-verb agreement. The Random House

Electronic Thesaurus provides word alternatives to facilitate revision. These programs are advisory rather than instructional.

**A View of the Writing Process:** Despite extensive writing research in recent years (Graves, 1982; Hillocks, 1986), we still know too little about how writers generate ideas, how they revise them, how they use what they have read, or how their writing time changes. One reason is that such processes take place in the writer's head, and external manifestations such as pauses, backtracking, use of resources, oral interactions with others, and so on, are difficult to record and interpret.

With text being created and stored on a computer, new possibilities arise for exploring the writing process. Some text editors offer a "playback" feature that replays the entire editing session, allowing students and teachers to see the text creation process. Sire (1989) describes how he uses this approach to revise the model. It records every keystroke it makes while revising student work. He then replays a review session discussing the reasons for each step in the process. This approach gives students insight into the revision process of a professional writer.

#### **Computers as ways to explore language:**

Computerized microworlds have been developed in various fields of science and mathematics to allow students to explore new areas, test hypotheses, construct models, and discover new phenomena (Papert, 1980). The same technology can be used to create microworlds for language. Investigating in these micro-worlds can be highly motivating for students. Additionally, they lead students to think deeply about language patterns, conceptual relationships, and thought structure. We are only at the beginning of this potentially powerful role of computers in language teaching.

An example of this approach is the use of the Logo programming language to

construct models of language structure and use (Goldenberg & Feurzeig, 1987). Students work within any genre or mode of discourse to develop their theories of meaning and form. For example, they can write programs that slander.

#### **Computers as media:**

Writing on a computer is increasingly not published as words on a printed page. Electronic mail, online documentation and "electronic encyclopedias" are read directly from the video screen. The computer has thus become a new communication medium that facilitates traditional writing on paper, but also enables other forms of writing. There are now multimedia messaging and conferencing systems that allow users to send not only text but also images, graphics, tables, voice and video, such as Diamond (Thomas, Forsdick, Crowley, Robertson, Schaaf, Tomlinson, & Travers, 1985). a variety of fonts that allow writing in languages such as Arabic, Russian, and Japanese. They can also display text in an appropriate orientation, such as from right to left or down a column. Research (Levy, 1988) examines how our current understanding of texts, documents, and media must change when these systems are used and how to understand the possibilities for improving communication and language exploration.

In addition, the computer can be used to create networks of related information (see Beeman, 1988). Explicit connections between texts allow readers to travel from one document to another or from one place in a document to another. A computer can help the reader follow the cross-reference trail without losing the original context. Electronic document systems also facilitate co-authoring of text. A group of children can create a collaborative electronic notebook by contributing their own entries, viewing and editing each other's entries, and then merging the entries.

Authors and readers can now get the same set of integrated tools for creating, browsing and developing text. They can navigate through

material created by other people, add their own links and annotations, and link the material to their own writings. As a result, the boundaries between author and reader may begin to blur. Research is needed to understand these changes and the implications they have for reading and writing instruction.

Several programs help writers organize their ideas using a tool described as linked cards. Note cards (Xerox) include a multi-window display that allows the recorder to create individual notes that can be linked to other notes. Notes can contain graphic images or text. With the IRIS (Brown University) hypertext editing system, a person reading an article about automobiles has a choice of how much detail they want to see about the history of automobiles, their production, their relationship to the rubber industry, and so on. Hypertext is now available on microcomputers (eg Apple Hypercard). These systems open up new possibilities of communication. The challenge is to use this powerful medium in a more open and enriching way.

#### **Computers as a learning environment:**

Computers can be used to promote social interaction and thereby contribute to language development and learning (Handa, 1990). Reading and writing skills are developed through feedback from others, peer tutoring and sharing of ideas. Several writing programs, such as Quill Mailbag and Library (Rubin & Bruce, 1985, 1986), make it easy for writers to share their products. Mailbag is a large-scale electronic mail system in which authors can send messages to individuals (other students or the teacher), groups, or the whole class. The library allows you to store texts with full titles and authors' names and keywords, which makes it easier to find a text by selecting a topic. Allows students to save the names of two authors with the text as a way to encourage collaborative writing.

Electronic networks are increasingly used for communication between students and teachers. For example, Computer Chronicles

News Network allows kids to share news from around the world. Research is now underway (see Riel, 1988) to explore different ways of organizing such networks. Some networks are task-oriented; others have a looser conference structure. Some have centralized management and some don't. It is too early to say what the full implications of the different network participant structures might be.

Teachers are also beginning to use electronic networks to communicate. In a project in Alaska (Bruce & Rubin, in press), teachers created a community using electronic mail. Their shared need to learn better ways of teaching non-mainstream students was partially fulfilled by exchanging ideas in the classroom and encouraging each other through an electronic network. The network made it possible to exchange messages much faster than regular mail and made the task of sending the same message to many people at once much easier. In addition, other documents already in electronic form, such as student texts or teacher texts written for a university course, can be easily transferred and shared with other teachers. There is now a Computers and Composition Digest used primarily in electronic form. Teachers, researchers, and software developers communicate through review problems that are compiled from e-mail messages and sent over networks to more than 600 locations.

There is also ongoing research into the use of real-time communication networks to teach English language skills or composition, as in the ENFI consortium (Batson, 1988; Sirc, 1988; Thompson, 1987). In these systems, students engage in a written form of conversation. Their written messages are immediately forwarded to others in the group. Such an environment requires students to articulate their ideas as written text, but allows for a faster response than traditional writing or even electronic mail. Many students find these environments more

conducive to writing than traditional writing courses.

#### **Conclusion:**

Technology can be used to change the teaching of writing in a variety of ways. Computers can help where the teacher's time and attention are insufficient. They can facilitate the processes of generating ideas and organizing text. Unlike teachers, they can give feedback at any convenient moment. He can comment on the features of written texts. With the help of a text editor, text revision is more efficient and beneficial. Computers can increase time on task and can help reduce the teaching load. They can thus create time and opportunity for teacher involvement in fundamental aspects of the writing process that are beyond the reach of the computer.

New technologies can also help implement a more functional way of teaching writing. The ideals of writing across the curriculum can become more feasible with the support of computers. Computer networks can be used to establish communities of student-writers. Real audiences and meaningful goals can stimulate the development of competence in written communication and also increase motivation.

However, the potential value of computers is far from being fully realized and there is a lack of research to back up many of the claims made. Many of the uses described here require a rethinking of student and teacher roles, curriculum, and school activities. In addition, current programs and models for computer-based activities are often cumbersome to use or difficult to integrate with other learning. Costs are still high, especially when viewed as a fraction of the scarce resources available for teaching

materials. And too often the best computing resources are distributed unfairly. Despite these issues, the use of computers to teach English language arts is actually growing and promises to be an increasingly important aspect of learning in the future.

#### **References**

1. Batson, T. (1988, February). *The ENFI Project: A networked classroom approach to writing instruction*. *Academic Computing* 2(5), 32-33, 55-56.
2. Bruce, B., & Rubin, A. (in press). *Electronic Quills: A situated evaluation of using computers for teaching writing in classrooms*. Hillsdale, NJ: Erlbaum.
3. Hillocks, G. (1986). *Research on written composition: New directions for teaching*. Urbana, IL: National Conference on Research in English.
4. McConkie, G. W., & Zola, D. (1985). *Computer aided reading: An environment for developmental research*. Paper presented at the Society for Research on Child Development, Toronto, Canada.
5. Roblyer, M. D., Castine, W. H., & King, F. J. (1988). *Assessing the impact of computer-based instruction: A review of recent research*. New York: Haworth Press.
6. Taylor, R. (Ed.). (1980). *The computer in the school: Tutor, tool, tutee*. New York: Teachers College Press.
7. Warren, B., & Roseberry, A. S. (1988). *Theory and practice: Uses of the computer in reading*. *Remedial and Special Education*, 9, 29-38.
8. Wresch, W. (1988). *Six directions for computer analysis of student writing*. *Computers and the language arts*, 65, 13-16.