New Technologies in Teaching English

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Abstract

It is apt to mention that New Technologies such as computers and networks are now being used in classrooms for instruction in composition, literature, decoding, reading comprehension, spelling, vocabulary, grammar usage, punctuation, capitalization, brainstorming, planning, reasoning, outlining, reference use, study skills, rhetoric, handwriting, drama, in short, for every area of language arts.

There are also programs specifically designed for learners in preschool, primary, upper elementary, middle school, high school, and college grades, as well as those in adult, English as a second language, foreign language, bilingual, special needs classes, home schools, and organizations such as libraries and museums.

Key words: Teaching English, use of new technology, various functions of technology

Introduction

These wide-ranging applications of technology raise the question, "What role should the computer, the Web, and other new communication and information technologies play in language arts teaching and learning?" The research in this area overlaps considerably with that of other research on technology in education. It has been a process of discovery, and at times, of contention between rival camps.

There are divergent conceptions regarding whether, why, and how these new media are to be used for instruction. This is not surprising given that there is no clearly identifiable thing to be evaluated. Turkle (1984) has suggested that the computer acts like a Rorschach ink blot test in the way it evokes diverse responses from people. She argues that these responses tell more about people than about the computer.

Conceptions of Learning vs What Computers Can Do or Cannot Do

Similarly, the ways that computers are used in schools reveals more about conceptions of learning than they do about what computers can or cannot do. This poses a challenge for even initiating a discussion on the topic of the use of new technologies in language arts. We need to analyze three complex, diverse, and evolving arenas.

First, we need to consider how new communication and information technologies are developing and to examine their various features.

Second, we need a way to characterize the diverse and rapidly evolving integration of these new technologies into daily life and literacy practices.

Third, we need a way to conceptualize the diverse goals of language arts instruction so that you may productively consider how the new media are being used to address those goals.

Promising Approaches from Past Works

Remarkably, a promising approach comes, not from looking ahead to science fiction world, but rather from looking backward, to some of Dewey's (1956) writings on curriculum. Dewey saw that any curriculum could be specified only in part by cultural resources and societal needs. In addition, the enacted curriculum must derive in large part from the interest, or impulses, of the child.

Although these interests themselves cannot be conceived independent of their sociohistorical circumstances, it is nevertheless the case that they constitute an alternative framework for shaping the curriculum. Dewey saw that the greatest educational resources were these "natural impulses": to inquire or find out things; to use language and thereby to enter into the social world, to build or make things; and to express one's feelings and ideas.

Broad Array of Applications

If we apply this four-part taxonomy to the use of new media in language arts, we see a broad array of applications:

Media for construction. New media allow students to produce and format texts easily; they facilitate revision of texts, check for spelling and grammar; provide interactive style sheets; they assist in the construction of tables, charts and graphs.

Media for communication. New media establish social realms that permit new forms of meaningful communication and reconfigure the relationships among students and teachers and between the school and the world outside the school. They provide automatic translations between language and hyperlinked definitions of new words.

Media for inquiry. New media expand the definition of reading to include hypertexts and multimedia; they represent in easily accessible forms all sorts of information that learners need about books and authors, about history, science, and the arts, and about how to inquire in different domains. They make the regularities, the beauties, and the difficulties of language something that students can examine and interact with in new ways.

Media for expression. New media make possible new modes of self representation. Hypermedia allows the intermixing of photos, drawings, sounds, video, tables, charts, graphs, and text.

It is not wholly possible to present a survey of computer use within each of these roles that is both comprehensive and brief. Instead, this chapter presents some representative uses as way of suggesting possible directions. Because computer use is still rapidly evolving, the examples represent categories of applications. We have examined the language arts software offered through Sunburst, as a representative range of widely used applications, both as a way of clarifying our taxonomy and as a way to see what parts of the taxonomy are well represented with current off-the-shelf software and which parts have only a few instances. After we describe and exemplify the taxonomy, we will look at ways in which it can point to potential new applications that might prove useful for learning and teaching language arts.

Computer-based Writing

Increasingly, computer-based writing never appears as words on a printed page. Electronic mail, on-line documentation, and 'electronic encyclopedias' are read directly from a video screen. The computer has thus become a new communications medium, one which

facilitates traditional paper-based writing, but allows other forms of writing as well. There are now multimedia messaging and conferencing systems which allow users to send not just text, but images, graphics, spread sheets, voice and video.

These systems are being equipped with a variety of fonts, to permit writing in languages such as Arabic, Russian and Chinese; they can also display text in appropriate orientations, such as right-to-left, or down a column. In the original version of our taxonomy (Bruce & Levin, 1997), we proposed four subcategories of media for communication: 1. Document preparation, 2. Communication, 3. Collaborative Media and 4. Teaching Media. Document preparation includes word processing, outlining, spelling, grammar, usage and style aids, desktop publishing and presentation system.

Sunburst catalog
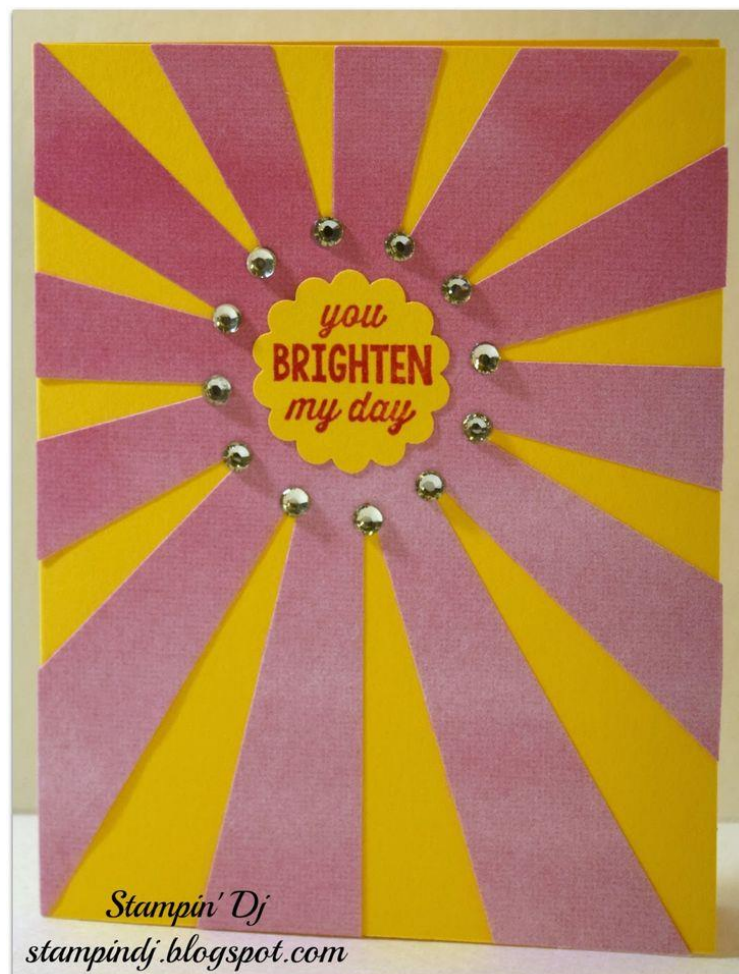
In the Sunburst catalog, there are seven different programs available for document preparation, including word processing (Sunbuddy Writer), outlining (Expression, Author's Toolkit), graphic organizers of writing (Visual Planner), multi-media word processors (Kid's Media Magic, Media Discovery), book and newspaper publishing programs (Easybook).

Another major subcategory is direct communication with other students, teachers, experts in various fields and people around the world. Examples are direct communication via email, asynchronous and synchronous computer conferencing, distributed information serves (the web) and student created hypermedia environments.

This is an increasingly common use of technologies for language arts learning and teaching. The only program in this category in to Sunburst catalog is a web editor for students (Web Workshop). A third subcategory is collaborative media. These include collaborative remote environments for sharing data, graphics, and text, group decision support systems, shared document preparation, and other ways that people can remotely work on common text and graphic objects. This category is not represented in the Sunburst catalog, probably because many of these are relatively new and still cutting-edge applications, this is likely to be a real growth area for language arts uses of new technologies.

The last subcategory, teaching media, includes tutoring systems, instructional simulations, drill & practice systems, telementoring, and educational games. This subcategory is well-represented in the Sunburst catalog. These are applications for teaching at all ages. At the pre K end are classic tutoring systems (Type to Learn, Every Child a Reader, Learning to Read on the Promenade, Reading Who? Reading You!) and educational games.

Note that some of these teaching media include several different approaches in one package. The Sunburst catalog also contains numerous teaching media for older students as well: Reader's Quest, Write On! Plus, Read On! Plus.

Individual Software Applications

In fact, individual software applications such as those represented in the Sunburst catalog were the dominant form of new digital tools ten years ago. But at the time the previous

version of this chapter was being written, Tim Berners-Lee and Robert Calliau were proposing a computer system that would significantly alter the literacy practices of a generation.

They wanted to implement in a major way the hypertext ideas that others had written about earlier (Berners Lee & Calliau, 1990). Their idea was to implement simple browsers for finding "large classes of information (reports, notes, data-bases, computer documentation and on-line help)" and also allow users to add new material. Computers can now be used to create webs of related information.

Explicit connections between texts allow readers to travel from one document to another or from one place within a document to another. The computer can help a reader to follow trails of cross reference without losing the original context. Electronic document systems also facilitate co-authoring of text. A group of children can create a common electronic notebook, by making their own contributions; viewing and editing own another's items, then linking the items together. Authors and readers can now be given the same set of integrated tools to create, browse, and develop text. They can move through material created by other people, add their own links and annotations, and merge the material with their own writings.

Electronic Networks

Electronic networks are being used increasingly for communication among students. Research in underway (see Riel, 1988) to explore different ways of organizing such networks. Some networks are focused on specific tasks; others have a looser conference structure. Some have centralized direction and others do not. Research has been conducted on using real-time communication networks to teach English language skills or composition, as in the ENFI consortium (Bruce, Peyton, & Batson, 1993). In these systems, students engage in a written form of conversation.

Their typed messages are transmitted immediately to others in the group. Such an environment requires students to formulate their ideas as written text but allows faster response than traditional writing or even electronic mail. Many students find these environments more conductive to writing than traditional writing classes. Word processing has become such a commonplace fixture within English and language arts classrooms that some students now take it for granted, saying, "we only do word processing; when will we start real computer use?" of

course, word processing is real computer use, and serves an important function, even if it only helps with the practical details of creating and sharing texts within a classroom.

Moreover, there is some, albeit mixed, evidence that in making it easier to compose and revise, to see problems with a text, and a shared text, students learn to be better writers and readers. There are hundreds of word processing programs, all of which allow writers to enter and revise text. Some present menus of functions from which the author choose, thus making them easy to learn and to use, but with some sacrifice of flexibility.

More complex programs allow writers to control details of text format, permit access to indexed notes, and have capabilities for tables of contents, lists, footnotes and end notes, bibliographies, and indexes. It is in the area of writing that we find the widest range of tool-like uses of computers. Many programs and web sites have been designed to help with the tasks of planning and generating ideas. Several word processing programs have an option to turn the student is not distracted by the visual image of what is written.

This technique of "invisible writing" (Marcus & Blau, 1983) is a way to facilitate "free writing" (Elbow, 1973) and encourages students not to focus on editing prematurely. Idea generation activities are included in many other programs. Outline generating programs can create empty, numbered outline structures within a word processing program. These programs have become known as "idea processors". The web offers unlimited opportunities for communication. For example, the TeenLit site, which is administered entirely by secondary teachers, provides "a forum for teen writers to publish and discuss their writing, review and discuss books they read".

Young writers anywhere can submit their creative works to share with others around the world. Now that any student with web access can set up their own web page, personal pages have become another important medium for communication (Bruce, 1998/1999). Yung people throughout the world now routinely build sites with their own stories, photos, music, and graphics.

Media for Expression

Coming to media for expression, another major use of technologies in language arts learning and teaching is as media for expression. Uses of media for expression have as a major goal for a person to express his/own thoughts for their own future comprehension, while uses of media for communication have as a major goal the expression of thoughts for the comprehension of others.

Technologies that are used for expression include drawing and painting programs, music making and accompaniment, music composing and editing, interactive video and hypermedia creation and editing, animation software, and multimedia composition more generally.

Sunburst

Many of the same programs in the Sunburst catalog listed under media for communication can also be used for media for expression if the intended audience is the author him/herself. So the use of multimedia word processors (Kid's Media Magic, Media Weaver) could be used for expression to create personal diaries or documents primarily to be viewed later by the author. Many of the uses of the writing tools in the catalog include language arts activities that are typically self-expression, such as poetry writing (even though poetry writing can then be shared in communication with others).

In addition, almost all the other technologies described previously as uses as media for communication can also be used as media for expression.

Media for Inquiry

Further, a third major category of new technologies for learning and teaching is as media for inquiry. In our earlier description of our taxonomy (Bruce * Levin 1997), we found a large number of uses of technologies for inquiry when looking at software developed for science, mathematics, and technology education. However, when looking at the language arts software described in the Sunburst software, there are only a few programs that serve as media for inquiry. For younger students, a program called MSS-NG- L-NKS is a language puzzle generator.

In each puzzle, learners use their knowledge of context and language to make educated guesses to fill in blanks in the puzzle. For older students, there are Writer On! Plus modules that focus on the analysis of settings, characters, plot, and themes focusing on "great literature." Some technologies exist to support composition within a genre, or discourse mode, such as poetry. Some programs help in analyzing or revising a poem. The Poetry Processor (Newman, 1986) aids the developing poet by displaying a line of a poem in a specified matter.

In fact, word processing is only one of the ways computers serve as tools for writing and reading (see Wresch, 1988). Programs with speech synthesizers or digitized speech now assist readers who encounter unfamiliar words On-line dictionaries help with word meaning, hypertext systems, which allow the storage of multiple examples, or commentaries on the text at hand. Databases of information make it possible for students to browse text as a method of stimulating their reading and writing. There are now large data bases available on compact disk as well as the web, these include the Oxford English Dictionary, the Encyclopedia Britannica, and complete statistics from recent Olympics games.

Many computers now come with a library of built software that include thesauri, dictionaries, or even the Complete Works of Shakespeare. There are also many computer-based databases which allow students to explore new worlds of information. Despite extensive research on writing (Graves, 1982; Hillocks, 1986), we still know too little about how writers generate ideas, how they revise, how they use what they have read in writing, or how their writing changes over time.

One reason is that such processes occur in the writers' heads, and external manifestations, such as pauses, backtracking, use of resources, oral interactions with others, and so on, are difficult to record and interpret. The use of technology to support inquiry in language arts is a promising domain for developing powerful new media for learning and teaching.

Media for Construction

Simultaneously, the fourth major use of technologies is as media for construction. These are use of technologies to affect the world. In the areas of language arts, this would include uses of technologies to create text and multimedia. For examples, in the Sunburst

catalog, there is software that provides environments for students to create animated stories (Story book Theatre Bundle).The have been several such "storymaker" programs developed over the recent past, but this remains yet another domain that may be open to substantial opportunities for development of innovative approaches in the future. For examples, computer-based micro worlds have been developed in various areas of science and mathematics to allow students to explore new domains, test hypotheses, contruct models, and discover new phenomena (Papert, 1980). The same technology can be used to create microworlds for language.

Investigations within these microworlds can be highly motivating for students; moreover, they lead students to think deeply about language patterns, conceptual relationships, and the structure of ideas. We are only at the beginning of this potentially powerful role for computers in language instruction. There are also an increasing number of tools that allow the construction of web pages, building from pre-existing templates under the guidance of software "wizard" agents.

These tools, even when the ultimate goal is the construction of a web site for communication or expression, can also be used for just for pure construction goals as well. The use of technology to support construction in language arts is another promising domain for developing powerful new media for learning and teaching.

One of the uses of a taxonomy is to help us classify a diverse set of things, to help us better understand them. Another use is to predict new cases suggested by gaps in instances categories defined by the taxonomy. The majority of the uses of technologies in language arts that we've covered so far have been largely uses of media for expression and media for communication. In contrast, the majority of uses of technologies for science, mathematics and technology classified in an earlier paper (Bruce & Levin, 1997) were in the uses of media for language arts that fall within this category? What about uses of technologies for language arts that are largely media for construction?

Subcategories of Media for Inquiry

Let us look at the subcategories of media for inquiry. These are 1) theory building, 2) data access, 3) data collection data analysis. Certainly language can be used as a theory building

tool. Most of our scientific, political and other theories are as a theory building tool. Most of our scientific, political and other theories are expressed in words (in addition to0 other media like mathematics, graphics, or computer models).

The taxonomy points to a need for technologies for writing that support this kind of theory building language uses.

In fact, language is used to store and retrieve data. Some trace the origins of written language to its use for recording business transactions and inventories, a specific kind of data storage and retrieval. Something as simple as a shopping list is a kind of data storage (recording what needs to be bought) and retrieval (its use in the store to remember what to buy).

Now with palm-top devices (and soon, wearable computers), uses of technologies of language arts for data access (calendars, to-do lists, address books, etc.) will become very common. Teaching students effective uses of these language arts uses, however, remains a largely neglected domain. Language is used to record data. In its broadest sense, any history or other written notes describing the world (meeting notes, newspaper reports, personal diaries, etc.) is a sort of data collection.

New technologies are impacting these recording reporting functions – reporters are using laptops and wireless networks to create news stories on the site of the news and immediately send them to their editors. Web cams allow new multimedia "diaries" of personal life to be recorded and widely shared. In Japan, written personal diaries are common on the Web (Sugimoto & Levin, 1999), turning a use of language events into a use for communication of that data to others.

Language is used in the analysis of text that has recorded data. Reflections or analysis of reports of the world are common both in society generally and also in intellectual work. We are just starting to see technologies that aid in that analysis process. Thus this is another area in which language arts uses of technology presents opportunities for innovation.

Now these subcategories are not the usual ways that we think about language uses and technology. However, the fact that they are unusual for language uses (but common for number uses) may generate more powerful ways of thinking about how to use the new technologies for

more effective language arts learning and teaching. Let us look briefly at how biologists have recently started using new computational and communication technologies for their work, and then extend that notion into the language arts. Computational biology has become increasingly important for making progress in the biological sciences.

Biology Workbench

A new tool for conducting computational biology is the "Biology Workbench" (Lathrop, Jakobsson, & Bourne, 1999). This tools allows both professional biologists and students of biology to access web-based databases of protein and DNA sequences and to compare and contrast the sequences of different organism. Let us imagine a "Language Workbench", in analogy to the Biology Workbench, which scholars and students could do a variety of analyses of literature texts.

This would be a web-based interface to distributed texts, with a set of tools for analyzing those texts, allowing a user to compare and contrast patterns in the texts. With such a Language Workbench, both scholars and students could participate in debates about whether Shakespeare wrote Shakespeare's play's, how much was writer A influenced by writer B, etc. such a Language Workbench could span the range of inquiry uses, and could involve students in join activities with literature scholars as well as their use of it more self-contained ways.

An example of this approach is the use of the programming language, Logo, to construct models of language structure and use (Goldenberg & Feurzeig, 1987). Students work within any genre, or mode of discourse, to build up their theories about meaning and form. For instance, they can write programs that "gossip.' In this case, gossip is viewed as comprising descriptions of actions that someone else has allegedly taken, actions which are newsworthy because they involve surprising revelations about a subject.

Language Construction Set

Notably, this approach is but one example drawn from a family of programs and activities designed to encourage students to explore language. Phrasebooks and Boxes (Sharples, 1985) are two extensions of Logo that allow children to classify words, create their own dictionaries and phrasebooks, devise a quiz, write a program that will converse in natural language, or build their own 'Adventure Games,' in which other converse in natural language, or build their own 'Adventure Games,' in which other students explore a student-created

fantasy world. It would be interesting to develop a general purpose Language Construction Set, which students of language could use.

Imagine an environment, in which students could be given a set of words, phrases, or other language elements, displayed visually on the screen. Then they could build language construction machines that combine those language elements and then display the "output" of the construction. There is still little research regarding classroom use of these constructive approaches to language understanding.

To Conclude

To conclude, it may be summarised that technology can be used to change writing instruction in a variety of ways. Computers can aid at places where teacher time and attention are insufficient. They can facilitate the process of generating ideas and organizing text. Unlike teachers, they can give feedback at any convenient moment. They can comment upon features of written texts. With the aid of a text editor, revision of text is more efficient and rewarding.

Computers can increase the time-on-task and can help lessen the teaching load. They can thus create time and opportunity for teacher involvement with essential aspects of writing processes that are beyond the reach of the computer. New technologies can also help to realize a more functional way of teaching writing. Ideals of writing across the curriculum may become more feasible with the support of computers.

By means of computer networking, communities of student-writers can be established. Real audiences and meaningful goals can stimulate the development of competency in written communication as well as enhance motivation. But the potential value of computers is far from full realization. Many of the uses described here require a rethinking of student and teacher roles, of curricula, and of school activities.

Moreover, current programs and models for computer-based activities are often clumsy to use or difficult to integrate with other learning. Costs are still high, especially when viewed as only a portion of the meager resources available for instructional materials. And too often, the best computer resources are inequitably distributed.

Despite these problems, the use of computers for English language arts instruction is in fact growing and promises to be an increasingly important aspect of learning in the future. Now a look at language teaching methodologies in nutshell.

Main English Teaching Methodologies

Grammar-translation

Learning is largely by translation to and from the target language, Grammar rules are to be memorized and long lists of vocabulary learned by heart. There is little or no emphasis placed on developing oral ability.

The Direct Method

In this method the teaching is done entirely in the target language. The learners is not allowed to use his or her mother tongue. Grammar rules are avoided and there is emphasis on good pronunciation.

Audio-Lingual

The theory behind this method is that learning a language means acquiring habits. There is much practice of dialogues of every situation. New language is first heard and extensively drilled before being seen in its written form.

The Structural Approach

This method sees language as a complex of grammatical rules which are to be learned one at a time in a set order. So for example the verb "to be" is introduced and practiced before the present continuous tense which uses "to be" as an auxiliary.

Suggestopedia

The theory underlying this method is that a language can be acquired only when the learner is receptive and has no mental blocks. By various methods it is suggested to the student that the language is easy – and in this way the mental blocks to learning are removed.

Total Physical Response (TPR)

TPR works by having the learner respond to simple commands such as "Stand up", "Close your book", "Go to the window and open it". The method stresses the importance of aural comprehension.

The Silent Way

This is so called because the aim of the teacher is to say as little as possible in order that the learner can be in control of what he wants to say. No use is made of the other tongue.

Communicative Language Teaching (CLT)

In fact, the focus of this method is to enable the learner to communicate effectively and appropriately in the various situations she would be likely to find herself in. the content of CLT course are functions such as inviting, suggesting, complaining or notions such as the expression of time, quantity, location.

Community Language Learning

In this method attempts are made to build strong personal links between the teacher and student so that there are no blocks to learning. There is much talk in the mother tongue which is translated by the teacher for repetition by the student.

Immersion

In fact, this corresponds to a great extent to the situation we have at our school. ESL students are immersed in the English language for the whole of the school day and expected to learn math, science, humanities etc. through the medium of the target language, English. Immigrant students who attend local schools find themselves in an immersion situation; for example refugee children from Bosnia attending German schools, or Puerto Ricans in American schools. Click here for many links to information about bilingual/immersion programs.

Task-Based Language Learning

The focus of the teaching is on the completion of a task which in itself is interesting to the learners. Learners use the language they already have to complete the task and there is little correction of errors.

The Lexical Syllabus

This approach is based on a computer analysis of language which identifies the most common (and hence most useful) words in the language and their various uses. The syllabus teaches words in broadly the order of their frequency, and great emphasis is place on the use of authentic materials.

The Natural Approach

This approach, propounded by Professor S. Krashen, stresses the similarities between learning the first and second languages. There is no correction of mistakes. Learning takes place by the students being exposed to language that is comprehensible or made comprehensible to them.

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