A brave new digi-world and Caribbean Literacy : a search for solutions

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Chapter 1

What are Open Textbooks?

The module “Students and OER” presented OER activities you can use with your students. This module, “What are Open Textbooks?,” provides an overview of open textbooks.

1.1 What are Open Textbooks?

An emerging development in OER is open textbooks, which are textbooks that are freely available with nonrestrictive licenses. Covering a wide range of disciplines, open textbooks are available to download and print in various file formats from several web sites and OER repositories. Open textbooks can range from public domain books to existing textbooks to textbooks created specifically for OER. Open textbooks help solve the problems of the high cost of textbooks, book shortages, and access to textbooks as well as providing the capacity to better meet local teaching and learning needs.

1.1.1 What do open textbooks look like?

There is a wide range of designs for open textbooks. The number of sites that provide access to them reflects the diversity of their design. Several file formats are often provided for open textbooks; typical formats are: HTML, Adobe PDF, and plain text. To download an open textbook, locate one from an OER repository or web site. The following list illustrates the vast landscape of sites that make open textbooks freely available. Go to one or more of these sites to locate an open textbook of interest to you:

- Project Gutenberg was the first producer of free electronic books. See their top 100 downloads: http://www.gutenberg.org/browse/scores/top.
- Wikibooks is a Wikimedia project started in 2003 with the mission to create a free collection of open-content textbooks that anyone can edit. Wikibooks provides support for multiple languages.
- Free High School Science Texts (FHSST) was initiated by young South African scientists and now brings together volunteers from around the world who are willing to contribute to the writing of the books.
- The California Open Source Textbook Project (COSTP) is a collaborative, public/private undertaking. It has been created to address the high cost, content range, and consistent shortages of K-12 textbooks in California.

Available for free at Connexions <http://cnx.org/content/col10600/1.10>
CHAPTER 1. WHAT ARE OPEN TEXTBOOKS?

• Open Book Project\(^9\) is aimed at the educational community and seeks to encourage and coordinate collaboration among students and teachers for the development of high quality, freely distributable textbooks and educational materials on a wide range of topics.
• Manybooks.net\(^10\) provides free eBooks for PDAs, iPods, or eBook readers. Books are available in several languages.
• The Assayer\(^11\) provides a catalog of books whose authors have made them available for free.

1.1.2 Using open textbooks in teaching and learning

There are a number of advantages to adopting an open textbook over a traditional textbook. The ability to customize a text so that it is more closely aligned with one’s teaching philosophy and pedagogical approach is a benefit to teachers. Students benefit from this as well; with targeted topics, activities, and assignments customized for their individual learning needs, the possibility of a higher engagement with the material is more likely than with a traditional textbook. The capacity to customize a text into discernable chunks offers a more personalized approach to learning.

The following table compares the capabilities of open and traditional textbooks.

<table>
<thead>
<tr>
<th>Open textbooks</th>
<th>Traditional textbooks</th>
</tr>
</thead>
<tbody>
<tr>
<td>dynamic</td>
<td>static</td>
</tr>
<tr>
<td>modifiable/customizable</td>
<td>non-customizable</td>
</tr>
<tr>
<td>targeted in-depth material</td>
<td>generic material</td>
</tr>
<tr>
<td>timely</td>
<td>dated</td>
</tr>
<tr>
<td>personalized for local conditions</td>
<td>standardized content</td>
</tr>
<tr>
<td>addresses multiple learning styles</td>
<td>assumes a uniform learning style</td>
</tr>
<tr>
<td>free</td>
<td>costly</td>
</tr>
</tbody>
</table>

Table 1.1

Read about a teacher’s experience in adopting an open textbook: No Books, No Problem: Teaching Without a Text\(^12\).

Read about how an editor from a major publisher gives his insider’s perspective\(^13\) of the inner workings of textbook publishing.

Read Monte Wolverton’s humorous look\(^14\) at the textbook creation process (via Edutopia’s web site).

See a list of ideas for How-To: Toss the Text\(^15\).

1.1.3 How are open textbooks created?

Here are two stories of how two different groups collaborated to produce open textbooks in a \textit{peer production} environment.

A South African graduate student saw a need when a group of high school students told him they did not have a science textbook. This encounter led to a worldwide initiative called Free High School Science

\(^9\)\url{http://www.ibiblio.org/obp}
\(^10\)\url{http://manybooks.net/}
\(^11\)\url{http://theassayer.org/}
\(^12\)\url{http://www.edutopia.org/banish}
\(^13\)\url{http://www.edutopia.org/node/1195}
\(^14\)\url{http://www.edutopia.org/images/graphics/001300_73pop.gif}
\(^15\)\url{http://www.edutopia.org/how-toss-text}

Available for free at Connexions <\url{http://cnx.org/content/col10600/1.10}>
Texts\textsuperscript{16} that provides free science and mathematics textbooks for Grades 10 to 12 science learners in South Africa.

An interested group of individuals started a Free Textbooks group during the 2007 iCommons\textsuperscript{17} Summit in Dubrovnik, Croatia. The group seeks to create a knowledge base to help educators worldwide develop Free Textbook projects. For more information, go to: http://wikieducator.org/Free_Textbooks\textsuperscript{18}. Subscribe to their mailing list: http://freeculture.org/cgi-bin/mailman/listinfo/freetextbooks\textsuperscript{19}.

1.1.4 How can you participate?

Open textbook projects rely on volunteers who are committed to a vision of providing high-quality, freely available textbooks to the worldwide community of educators and learners. Most of the projects mentioned in this module have information on their site on how you can participate in their project. There are many levels of participation; for example, you can:

- subscribe to their mailing list or news feed
- proofread pages
- contribute content you have already created
- help locate authors who may want to contribute content
- author new content
- create images
- write a review about an open textbook
- provide translation support for content
- donate funds to keep the project running
- use open textbooks in your teaching and learning and talk with your colleagues about your experience
- host an in-person event for content creators to gather and work together
- contact the project’s coordinator and ask what is needed and how you can help.

1.1.5 OER stories from around the world

It’s 2 am in South Africa\textsuperscript{20} and a delivery van is taking 100 hard copies of the free high school science text to a school in a small village . . .

Your experience using open and freely shared course-related materials is valuable in the reuse and evolution of the materials. Tell us your story\textsuperscript{21}; how you’ve used these materials and how their use has impacted how you teach or learn.

1.2 Activity: Review an Open Textbook

Using the sites mentioned in this module, review a few open textbooks that you can use in your teaching and learning. If you are not ready to replace your existing traditional textbook with an open textbook, analyze what topics are weak or missing in your present textbook and use the open textbook for supplemental materials.

\textsuperscript{16}http://www.fhst.org/
\textsuperscript{17}http://icommons.org/
\textsuperscript{18}http://wikieducator.org/Free_Textbooks
\textsuperscript{19}http://freeculture.org/cgi-bin/mailman/listinfo/freetextbooks
\textsuperscript{20}http://elearningnetworks.com/OERCommons/stories/southafrica.html
\textsuperscript{21}http://elearningnetworks.com/OERCommons/stories/submityoustory.html
1.3 Activity: Share Your Experience

We’re discussing the new avenues for teachers and learners to select and augment learning resources that meet one’s unique teaching and learning needs, including open textbooks. In the OER Commons discussion “Teaching and Learning,” share your thoughts about this important issue. Here are a few questions to consider in your post:

1. If you have used an open textbook, share your experience.
2. If you haven’t used an open textbook, what are the adoption issues?
3. What have been your students’ reactions to using an open textbook?
4. What are your thoughts or experiences with participating in open textbook projects? What role(s) did you take? (e.g., authoring content, editor, etc.)

1.4 For More Information

The following resources have been selected to provide more information on concepts we covered in this module.

- OER Commons textbooks: http://www.oercommons.org/courses/material_types/textbooks
- Public Domain Textbook Sources: http://cnx.org/content/m14471/latest

1.5 Other modules in this course include . . .

- Why OER?
- Finding OER Materials You Can Start Using Now
- Tagging, Rating, and Reviewing OER Materials
- My OER Portfolio
- Submitting Materials to OER Commons
- OER Licensing and Conditions of Use
- What is Localization
- Students and OER
- OER Case Study
- Glossary

1.6 OER Commons Links

For more information about OER Commons, send an email to info@oercommons.org.

Use this feedback form to send OER Commons general feedback, a feature request, or information about a bug/problem you had using the site.

Available for free at Connexions <http://cnx.org/content/col10600/1.10>
To see the ever-growing list of the new content providers and contributors to OER Commons, visit the Content Providers\textsuperscript{36} page often. You can be one too!

1.7 “Quotable Quote”

Knowledge is the only kind of wealth that multiples when you give it away.\textsuperscript{37}

1.8 About This Module

The "How T os" of OER Commons is a set of learning modules evolving out of the development of OER Commons (http://www.oercommons.org\textsuperscript{38}), a teaching and learning network for free-to-use educational materials from around the world, created and licensed by the Institute for the Study of Knowledge Management in Education (ISKME).

Course contributors are Lisa Petrides, Amee Godwin, and Cynthia James, and online learning consultant, Patricia Delich.

For more information, visit http://www.iskme.org\textsuperscript{39} and http://elearningnetworks.com\textsuperscript{40}.

\textsuperscript{36}http://www.oercommons.org/oer/providers
\textsuperscript{38}http://www.oercommons.org/
\textsuperscript{39}http://www.iskme.org/
\textsuperscript{40}http://elearningnetworks.com/

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Chapter 2

Improving Literacy through Communication Experiences

MODULE OUTLINE

- The Problem
- Language in Trinidad and Tobago
- Students' views and the relationship between Language and Literacy
- What can a teacher do? Suggestions for using Communication experiences
- Activities
- References

INSTRUCTIONS FOR USE

1. Read the sections that follow and raise questions on them. 2. You may also suggest additional links or references that other users can explore. 3. How can the section on activities be expanded? 4. Have you encountered a similar situation in your classroom? Describe it for other users.

THE PROBLEM

This module arose out of observations which the writer made during a Reading-Library project in Princes Town, Trinidad. One of the aims of the project was to explore for ways of teaching Reading and Writing to (creole-influenced) secondary school "problem or struggling readers". Many young people—especially males (age 14+), who are "struggling readers" leave the secondary school system in Trinidad and Tobago and are unable to communicate competently in speech and writing in International English. The project accommodated 50 students over a two year period. More than half were males (15+-17 years) from the Technical-Vocational Department of the school (Matilda Senior Secondary). They attended weekly 2-hour sessions in an after-school setting. Students were required to visit the Princes Town Public Library as a group for two to three hours a week to learn library skills.

BACKGROUND TO THE PROJECT

The project students were of Indo and African descent. They came from rural homes in the Princes Town-Moruga-New Grant area in South Trinidad. (See the map of Trinidad in the Links section.) Parents were mainly gardeners, skilled workers and labourers. In Matilda Senior Secondary, there were approximately 1000+ students and 100+ teachers. The students were prepared over a two-year period for the "sophisticated" Caribbean Examinations Council exams in academic and technical-vocational subjects. Reading some of the textbooks in this area was a students’ nightmare.

During these sessions we (the tutors) attempted to build the "traditional" Language-experience shared/group stories using the students Creole-type English. Even though we explained to them why we were doing this, a small crisis occurred. A group of students objected "vociferously" to the use of Trinidadian

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1This content is available online at <http://cnx.org/content/m14074/1.32/>.

Available for free at Connexions <http://cnx.org/content/co10600/1.10>
Creole English to form the stories for their reading material. Of the 50 students, 75% of them preferred to use Standard/International English for their stories. The objection was so fierce (creole being referred to as "DAT"—that language) that the writing/composition of stories in Creole had to be abandoned. Instead, through informal interviews (chats) and classroom observations, the writer gained more insight into how the young people felt and thought about their Language. She thought of this as comprising their own unique "experience" i.e how they "saw" themselves communicating and using Language in their community. She attempted to use this to help them interact with and produce English texts in a meaningful way. What follows in the sections BELOW are suggestions for an approach to developing materials based on the students’ communicative experience.

THE LANGUAGE SITUATION IN TRINIDAD AND TOBAGO: SCHOOL AND COMMUNITY

Winford James, a Caribbean Creole linguist has discussed in non-technical terms the crisis that exists in language use and communication in Trinidad and Tobago’s classrooms today (see Links). This situation arises because Creole English is still regarded as a "broken" and "corrupt" form of English. He has also listed grammatical features of Trinidad and Tobago Creole English. Standard/International English is the language of upward social mobility, and of education. It is the language of success. The crisis deepens when one realizes that students’ ability to understand spoken English far outweighs their ability to produce this in speech or writing, or for many students to read and understand texts written in English.

Many gifted speakers e.g. pastors, politicians and teachers can switch glibly between the two ‘codes’ when the occasion, hearers and purposes of speech require this. (Author's question: Is this a sign of "giftedness" which we have not yet recognized or capitalized on?) What is needed is an approach that will allow teachers to reflect on how they use language with creole-influenced students and for the latter to explore in a positive fashion the creative uses of Creole English.

Example 2.1
A SLICE FROM A GROUP INTERVIEW
The question for group discussion was: "How you feel about 'Trini talk' (Creole dialect)?" Here are some responses: Bill: "...is something I accept." Jarod: "Vulgar talk. I prefer polite language." Teacher: "What is polite language?" Lisa: "They speak that in Standard English." J: "...like when you talking to a girl. You don’t talk harsh or obscene or ignorant." In the group’s view the opposite of "talking polite" is "obscene". They agreed that Creole speech was not primarily for obscene purposes. It happens that way in the community.

STUDENTS’ VIEWS OF THE RELATIONSHIP BETWEEN LANGUAGE AND LITERACY

Dell Hymes(1972) said what we need to know about Language in the classroom is "the relationship between a grammar of English and the ways in which English is organized in use by teachers, students and the communities" they come from; the meaning of features ... such as intonation, tone, rhythm and style; the range of 'means of speech'..."conveying respect or disrespect, concern or indifference, intimacy or distance, seriousness or play...the appropriateness of different ways of speaking to different topics, speakers and situations." Ethnography is the recommended research method to uncover these "means". (in Cazden et al. pp xi-lvi. ) During my informal chats with students, they "voluntarily" spoke about their language in this fashion—not in terms of grammatical structures, but in terms of "ways" that conveyed respect or disrespect, intimacy or distance, seriousness or play. Below are some points they made about Language and their earlier Literacy-learning.

STUDENT TALK SPECTRUM
At one end of the spectrum is "Polite" speech and at the other end "Ignorant" or disrespectful verbal behaviour. These categories for Language in the community, are those that the students themselves used. ("Polite" ___________________ "Ignorant") In between the two points there are a range of speech acts that make up the spectrum. In the "polite" category the students placed those acts which they thought had "positive" value; in the "ignorant" category, they placed what they thought were negative or "senseless" uses of speech. All of this is as they know it in the community in which they live. They also considered as ranging between the two points, acts such as: Sweet talk or mamaguy, robber talk (bravado) and rude talk. In the two categories of positive and negative speech acts both Standard English and Trinidadian Creole are

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used. But the latter is used more frequently for "ignorant", negative talk and this is accompanied by loud, vehement tones.

**POLITE TALK: POSITIVE**
- Old talk
- Sweet talk—talking in nice tones
- Boasting/Brag, robber talk—hyperbole
- Good talk/getting advice from adults
- Fatigue/picong/tease—insult
- Knowing bounds or limits, so as not to violate a person

**IGNORANT TALK: NEGATIVE**
- Back chat or answer back
- Cuss—using obscene language
- Argument—loud talking
- Quarrel
- Mauvais langue, bad talk or gossip
- Rum talk, slack talk, old talk

**OLD TALK**
It appears that "old talk" for young as well as for older people, occurs in a relaxed environment among a group of friends or acquaintances. There is a freedom to participate here, to listen, to express one’s views and to add humour, to perform, to sing, to chant and tell news and tales. Within an old talk session some disrespectful speech can occur. It is necessary to know bounds or limits and not hurt another person with too many "heavy" insults. All of the speech acts listed in the "ignorant" category were regarded by the students as "talking stupidness" and "making noise". The irony is that students (mainly males) admitted that they used obscene and loud violent speech when the occasion arose to gain advantage over an opponent and to gain "respect" among their peers; although they strongly disapproved of this way of talking. They found it especially distasteful when used by females.

**LITERACY LEARNING EXPERIENCES**
Our students related that they learned Reading at home the hard and painful way, that is, their lessons were accompanied by "licks" or physical punishment. "Making a mistake" while reading a passage orally is actively discouraged. These unpleasant experiences have a negative impact on students. Some parents may discourage their children from reading for pleasure because the material does not have a textbook format. Reading comics and magazines are discouraged. On the other hand, life is hard economically and parents/guardians cannot afford to buy "story books" for children. It is a struggle just to send them to school to get a certificate. The students’ more pleasant Literacy memories were when they were praised by teachers for "doing good work" or for responding well in class.

**WHAT A TEACHER CAN DO: SUGGESTIONS FOR CREATING MATERIALS**
Since the society is one that is rich in oral traditions, and performance (called "playing") occurs naturally even for very young children, educators can make use of these verbal experiences and those expressed by the students, to structure interactions with texts. **WHAT IS THE VALUE OF ALL THESE "MEANS" OF SPEECH FOR LITERACY LEARNING?** Using mainly the positive elements of talk, and with the relaxation, drama, spontaneity and freedom of participation as in "old talk", they can learn switching behaviors and roles verbally (code-switching). This is important since it will build their linguistic security and confidence. They can also learn the appropriateness of the varieties in use in Trinidad and Tobago. The oral reading of English texts will form a part of this "playing" scenario as in Readers’ Theatre. Discussions can take place in the vernacular as well as in English.

**STUDENTS USING SPEECH ACTS TO CREATE THEIR OWN MATERIALS**
Story telling is an art that can be practised profitably in speech and in writing. Here both Standard English and Trinidadian Creole English can be used. Art and Music are areas where much stimulus material can be developed. **Available for free at Connexions: http://cnx.org/content/col10000/1.10**
be found to enhance presentations. "Knowing bounds or limits" and "Good talk" are themes which will inspire the writing and reading of their own "experiential" material. Teaching reading skills (ESPECIALLY DECODING) within this context should be more enjoyable. Teenaged males are particularly apt at "bragging", boastful or exaggerated speech with its repetitious quality. It is a part of their life style. This can be fine-tuned to capture its value as poetry. Not only this, but "old talk" participatory stances provide a clue for the structure and tone of in-class participation with the teacher controlling noise levels. There is a lot that teachers can do with their peers and their students to create "communication experience" schemes that provide enjoyment, the development of literacy, and strong community values.

SUGGESTED ACTIVITIES
(1) Write down your observations on how your students interact with books and other media. (2) What other "communication events" (e.g. "Good talk", "Knowing Bounds") can you think of as themes for student composition? (JOURNALING) (3) With a group of your colleagues, compose a skit based on this theme i.e. "Knowing Bounds" using code switching (DRAMA). (4) Discuss how student discussions in International English differ from their participation in Creole-type English? (DISCUSSION) (5) When reading material is based on their "communication" experiences are they more eager to learn Reading skills than under normal classroom circumstances? (OBSERVATION and DISCUSSION) (6) Write a piece of "robber talk" with your students and have them perform it. Be sure to use Standard English as well as Creole speech. (DRAMA and CREATIVE WRITING)

References:
Chapter 3

Three Special Events in the History of Technology for Creating, Organizing, and Sharing Information

3.1 Introduction

The development of technologies for encoding, storing, communicating, and exploiting information is a major feature in the history of the human species. Although this development has generally progressed smoothly over time, we feel it is valuable to identify three significant points of rapid change or “paradigm shifts.” The first and possibly most revolutionary change was the invention of writing and its companion, literacy—the transition from an oral to a writing culture. The second was the invention of the printing press—the transition from hand-writing to the print culture.

We are now in the midst of a third transition to an electronic or digital culture. A convergence of several technologies has created new systems for dealing with information that are potentially as revolutionary as the development of literacy and the invention of the printing press. The base for this transition was established in the 1940s with the invention of the digital computer and the development of information theory. It was empowered by the invention of the transistor and integrated circuit and has blossomed thanks to the connectivity provided by the Internet and wireless technology and the storage provided by semiconductor, hard disk, and optical memory. The ever-increasing power of computer and communications hardware has been accompanied by ever more powerful software in the form of computer languages, operating systems, communication protocols, and search technologies.

It may be that most people feel they live in a time of major change, but history reveals that few actually do. One purpose of this paper is to examine earlier transitions in order to establish that we are indeed currently in another paradigm shift. A second purpose is to challenge the usual pattern of discovering after the fact that something big has happened and then determining how to mitigate the damage or inefficiencies that seem inevitably to ensue from major change and how to take advantage of the new opportunities and capabilities that are opened. For example, literacy was first an improvement and extension of the oral tradition; it subsequently created completely new systems for human uses of information. The printing press was first an improvement on the hand-written method of producing books; it then transformed the entire literate world and extended it to the masses. Today, the information age has produced a setting in which new information systems will transform not only the way we develop and exploit information, but also the way we interact with each other.

In this paper, we discuss in particular detail the educational publishing project, Connexions, as an...
example of a new technology that is both a natural evolution out of literacy and the printing press and a revolutionary change or paradigm shift that will be as disruptive as were writing and printing. The reason we do this in a historical context is to develop Connexions in a deliberate way, to achieve the positive goals we currently envisage for education as well as general information usage, and to use a strategy that will attempt to maximize the positive unintended consequences and minimize the negative ones. We try to take a “holistic” approach, taking into account what goes on (or can go on) in the human brain, what goes on (or can go on) in individuals or small groups, and what can go on in large societies or cultures.

Because this short paper covers a large span of time, ideas, and history that cannot be fully developed, we provide a fairly comprehensive set of references.

3.2 Literacy

The emergence of writing and literate activity some five thousand years ago transformed human life as profoundly as the earlier revolutions of intensive agriculture and language. - [Goody][?]  

The earliest uses of writing were to record lists of inventories and of sale and purchase transactions. Later, writing served as a means of helping the memory of storytellers in the oral tradition—writing was used as a prompt, not as part of an intellectual or creative activity. The people who read used writing to help them remember stories they and their audiences already knew. Only later did people read stories that writers had created, not merely recorded.

Without writing, the literate mind would not and could not think as it does, not only when engaged in writing but normally even when it is composing its thoughts in oral form. More than any other single invention, writing has transformed human consciousness. - [Ong, p. 78][?]  

Resistance to change occurred even in the earliest stages of literacy. As intellectuals, leaders, and thinkers considered the merits of this new “technology” called writing and literacy, they predicted its potential shortcomings. In the Phaedrus, Plato has Socrates say that writing is inhuman, a pretender, establishing outside the mind what in reality can be only in the mind,” then adding that “writing weakens the mind.” Perhaps writing does weaken the memory, just as the calculator may weaken the memorized knowledge of the multiplication tables or speed-dial may reduce the memory of telephone numbers. Experience has demonstrated, however, that some very positive personal and societal effects accompanied these “weakens.”

Some of the dire predictions came true, of course, because they were grounded in what was known. The positive things produced by literacy generally outweighed the negative but were often not predictable because nothing like them had ever existed. Literacy created a new culture, but it also destroyed part of the old one, and that should be kept in mind. This example illustrates the Law of Unintended Consequences.

Many of the stories in the oral culture were structured in the style of poetry with rhyme, rhythm, and form to aid the memory. The telling of these stories was a performance by a highly skilled person with many tricks to help him/her remember and the ability to improvise and create on the fly. If a person in a story fell from favor, then they might disappear from the next telling. The story was “alive,” continuously adapting and changing.

After writing came into general use, the culture of communication changed. Poetry evolved into a more compact and efficient prose, as memory aids were no longer needed. Similarly, the need to improvise vanished, and a larger group of people was able to tell (read) stories, with more “accuracy” but at a cost. The stories become frozen, perhaps even “dead.” They became separated from the teller and the listener, with an independent existence in written form.

But there’s a larger point here. Writing would also significantly add to the power [emphasis added] of the word, and in so doing it would change the nature of what could be thought. - [Stephens, p. 17][?]  

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The earliest writing used symbols that directly depicted the object or idea being described. In the west, this ‘short hand’ evolved into phonetic symbols representing sounds in speech rather than the objects themselves. This early writing was only loosely tied to language, but the arrangement changed to a tight connection when the phonetic alphabet evolved and people were able to read aloud.

The pictorial writing systems required an enormous number of symbols, but the change to a phonetic system reduced the number, similar to today’s western alphabets. The number of phonetic symbols, in fact, was initially too small since the alphabet had no vowels, only consonants. Words and sentences were not separated, and there were no paragraphs or chapters. Like shorthand, the written language was a prompt, enabling the reader to ‘know’ what had been written (probably because he already knew it). Indeed, a fully phonetic alphabet, the separation of words, and the development of punctuation, all of which enabled silent reading (which occurred around the 1500s), were major advances in the technology of writing and the book. This was the second phase in the development of writing, where unanticipated developments were changing everything.

As the change toward literacy has occurred, it has produced changes in the configuration of human society. . . . An act of vision was offered in place of an act of hearing as the means of communication, and as the means of storing communication. The adjustment that it caused was in part social, but the major effect was felt in the mind and the way the mind thinks as it speaks. (Emphasis added) - [Havelock, p. 100][?]

In addition to much-improved efficiency, the development of writing techniques brought along other ideas and changes.

The printed text is supposed to represent the works of an author in definitive or ‘final’ form. For print is comfortable only with finality. . . . Print culture of itself has a different mindset. It tends to feed a work as “closed,” set off from other works, a unit in itself. Print culture gave birth to the romantic notions of “originality” and “creativity,” which set apart an individual work from other works even more, seeing its origins and meaning as independent of outside influence, at least ideally. - [Ong, pp. 132-133][?]

A supportive commercial enterprise accompanied the development of literacy. At first, manuscripts were written from the orally composed stories. Perhaps Homer’s epic writings came into being this way. Later, manuscripts were composed directly in writing, never having been uttered. An industry developed that would copy these “originals” under commission, as a tailor sews suits. After a literate public developed, the scribes would make several copies of a manuscript and then offer them for sale much as a clothing store operates now. Along with this commercial side, a legal device came into being. If money could be made, the question of ownership arose and the concept of the “right to copy” or the “copyright” was invented.

If we step back and look at this comparison of the oral and written cultures, we see still another interesting and pertinent dimension that has to do with physiology. If I tell you a story, then I transfer a piece of information from my brain into yours. On the other hand, if I write that story down on paper and you read it, then I have also transferred the piece of information from my brain into yours, but it has gone through a quite different part of the brain and nervous system. In the first case, a vocal and auditory process occurred. A blind person could participate. In the second case, an image and visual process occurred, and a deaf person could participate. In the first case, a person could address a crowd and a certain efficiency could be achieved, but in the second case, a much larger audience could be reached and spread over time as well as space.

Technology has continued to expand both the means of communication, with the telephone, radio, and tape recorder extending the vocal/auditory process and the telegraph, fax, television, and email extending the visual process. Is this what the Sumerians and Greeks, the inventors of writing and the alphabet, had in mind? Surely not, but some unintended consequences produce phenomenally positive ends.

In this section, we have tried to indicate the incredible effects that literacy has had on human culture. The point is that some of the predicted negative effects did occur and many of the positive effects that occurred were not predicted. This was true because the negative effects were mainly the destruction of something that
was known. The positive effects, however, involved the creation of things that were completely unknown in the preliterate culture. Some of these positive effects were initially seen as negative. These factors need to be very carefully considered as we try to predict the future of the next phase of information systems. Indeed, the negative "unintended consequence" is the effect that we wish to understand and minimize.

Reading and writing seem to fit the definition of technology quite well and can be studied as such. For greater depth and more detail on literacy and writing, one should read the works of Parry, Ong, Havelock, and Goody. For an example of how writing and literacy are viewed as technology, see Goody’s Chapter 8: "Technologies of the Intellect: Writing and the Written Word."

### 3.3 The Book and the Printing Press

About the year 1450 some rather unusual “manuscripts” made their appearance in the northern regions of Western Europe. Although not very different in appearance from traditional manuscripts, they were “impressed” on paper, sometimes on vellum, with the mechanical aid of a printing press which used moveable type. - [Febvre and Martin, p. 9][7]

Gutenberg’s invention of the movable-type printing press in the fifteenth century is widely considered, along with gunpowder and the compass, one of the three most influential inventions in history. This is a truly remarkable statement since the first printed books looked fairly similar to the hand-written books that preceded them. Nevertheless, the enormously improved efficiency and accuracy of machine-printed books had a powerful effect that continued to develop for centuries. As with other “disruptive technologies,” the first phase of influence was simply to do the old job better. Then, in the second phase, the existence of large numbers of inexpensive books changed the way education and communication took place, the way material was authored and, in the process, invented a new tool for mass entertainment and created a commercial commodity.

To bring the problem into a sharper focus: the advent of printing, we are told, was the most important event “in the cultural history of mankind”; it “brought about the most radical transformation in the conditions of intellectual life in the history of Western civilization.” - [Eisenstein, p. 115][8]

This transformation occurred not only in the life of the elite, but in all of society. The inventions of literacy and the printing press brought to the masses what previously had been reserved for the privileged and, before that, the priest and the scholar. They brought a new and different dimension to the democratic process, the educational enterprise, and the religious life of the society. It is no coincidence that the Reformation, a democratization of Christian religious life, also began in Germany, within a century of Gutenberg’s invention. What was the obvious book to be printed by this new technology? The Bible. What was the obvious result? Readers—priests, educated laymen, even the literate poor—might read and interpret for themselves. Revolution. Certainly an unintended consequence but, perhaps with more thought, a predictable one.

The current paper book is the result of technical evolution over thousands of years. It is now a mature technology and is being challenged by modern digital technologies. Stone, bone, clay, papyrus, scrolls, codex, ink, paper, and the printing press were all steps in its evolution. A parallel development of a commercial system supported the creation and marketing of books, resulting in the current system of authors, editors, publishers, book stores, and readers. We are now seeing the beginning of the effects of modern digital technology, mass storage technology, and Internet communications.

Because the printing press had a much greater impact than was anticipated, we may ask if the use of electronic or digital information—cheaper to produce, easier to author, easier to alter, and almost free to distribute—will have a similar powerful, unexpected effect. Of course it will.

### 3.4 Hypertext and the World Wide Web

The most remarkable species of book to punctuate the equilibrium of the twentieth century was
The modern concept of hypertext seems to have originated with the 1945 Atlantic Monthly article by Vannevar Bush, who used his ideas of how the mind works “by associations” to propose the memex, a forerunner to linked hypertext.

In the early 1960s, after reading Bush’s article, Douglas Engelbart started the Augmentation Research Center (ARC) at the Stanford Research Institute. The ARC used a precursor of hypertext in what it called the On-Line System. Engelbart talked about asynchronous collaboration among teams distributed geographically, about the use of computers to augment human intellect, and about the idea of “bootstrapping” as an iterative and coadaptive learning processes or a feedback system. All of these ideas show up in Connexions, to be described later.

The actual term, “hypertext,” was coined around 1965 by Ted Nelson, who developed the idea in a complex system he called Xanadu.

By “hypertext,” I mean non-sequential writing—text that branches and allows choices to the reader, best read at an interactive screen. As popularly conceived, this is a series of text chunks connected by links which offer the reader different pathways.

A form of hypertext has come into common use on the Internet and World Wide Web (WWW) with the hypertext markup language (HTML), the hypertext transfer protocol (HTTP), and the browser, Mosaic, which evolved into the familiar Firefox, Netscape, Internet Explorer, and other browsers. HTML enables the linking of a point in a text to another point in that text or another text. This linking is created by the author to allow a new control by the reader.

This system, which breaks up the usual linear or sequential structure of the traditional book so that readers can easily branch to related topics, may be more compatible with the way people think and learn (that is what Bush and Engelbart had in mind). The traditional book tries to bring this ability with the use of page references, footnotes, endnotes, sidebars, and other print techniques. The table of contents and index are attempts to create a more flexible structure. In a way, these structures are precursors to hypertext and the digital search engines.

Ted Nelson talks about the free-flowing live documents on the network being subject to constant new use and linkage, and those new links continually becoming interactively available. Any detached copy someone keeps is frozen and dead, lacking access to the new linkage. This is an interesting response to Plato’s concern about the harmful effect of literacy and writing. If literacy and writing “killed” the text, then perhaps hypertext brings it back to life in an even more flexible form. Indeed, it may create a format that we cannot imagine now.

Hypertext would not have achieved its broad impact without the development of the modern Internet, WWW, and the high-density storage of hard disks and CD-ROMs. Again we have an interesting case of unintended consequences, with the seminal ARPAnet evolving from a research and defense tool into the popular business, educational, communication, and personal information lifeline it has become today.

HTML, the hypertext markup language, not only implements linking, but also allows control of the display of material. Unfortunately, it does not do much to encode what the material means. A second-generation language called the extensible markup language (XML) is just now becoming available; it can distinguish between form and content. This ability will be crucial to bringing a new information system into being.

As writing and literacy extended human memory and accuracy, hypertext extends the way the human mind connects and relates ideas and information in text. It is a way to more directly implement metaphor, analogies, and multidimensional relationships. The human mind contains ideas and stories that traditional text and books capture efficiently and effectively. The connections and relationships of ideas and the dynamic nature of thinking are crudely captured by traditional text, but both are better implemented and extended by the linking and tagging in hypertext. This opens a rich set of educational and perhaps artistic possibilities, with the combination of text and hypertext providing a more accurate match to the way the mind works (or might evolve into working).

Available for free at Connexions <http://cnx.org/content/col10600/1.10>
“In an extreme view, the world can be seen as only connections, nothing else. We think of a
dictionary as the repository of meaning, but it defines words only in terms of other words. I liked
the idea that a piece of information is really defined only by what it’s related to, and how it’s
related. . . . The structure is everything.” - [Berners-Lee, p. 12]?

A deep understanding of this new hypermedia environment is much more difficult than looking back at
literacy or the printing press, because we are in the middle of creating it. That, of course, is the point of this
article. Read the material by and about Bush, Engelbart, Nelson, Levy, Novak, Berners-Lee, and Landow,
then use a browser on the web to see how hypertext changes reading and the use of information. Less positive
interpretations of some of the unintended consequences are presented by Birkerts and Postman.

3.5 The Digital Commons

Digital computation, storage, and communication technology have enabled entirely new ways to create,
organize, and exploit information. For example, as we have seen, hypertext breaks apart the linear sequential
ordering of the book, giving both the author and the reader new possibilities, greater flexibilities, and more
control. But merely publishing a book as a set of hypertext web pages is only the first incremental step
along the way of the third transition. In this period, we will see all modes of interaction with information
changed, in particular not just how humans interact with information but also how they interact with each
other.

The print age has been based on paper books that are loosely inter-connected through a system of
citations and quotations. Books themselves are organized into libraries, the “cathedrals of learning” if you
will. Consider carefully the role that people play in this age. Most books are written by a single author or a
small team, and authors are only loosely connected together in to communities. A book’s readers are generally
completely disconnected from one another. Moreover, the time scale of writing, editing, peer-reviewing, an
updating is on the time-scale of years. Since time costs money, books are expensive. In summary, we can
describe the print age as loosely connected, slow-paced, and costly.

The efficient one-to-many, one-to-one, and many-to-many communication links provided by the Internet
and WWW are reinventing the book into a new information system that is tightly interconnected, fast-
paced, and inexpensive. The core concept is the idea of a digital commons, a vast repository of richly
inter-linked hypertext materials that is woven and tended by a multitude of authors worldwide. In the
digital commons, authors can form communities to collaborate and continuously improve, re-use, and re-
organize the material in the commons. The community culture created by this system could have some of
the attributes of the “collective intelligence” of Levy, Engelbart, Licklider, Barabási, Weinberger, and others
where the resulting whole is greater than the sum of its parts. The readers of the commons are also more
tightly connected by communications technologies (email, discussion forums, chat rooms, blogs, wikis, and
so on). If current libraries can be compared to Eric Raymond’s cathedrals, then the future digital commons
will be like a bazaar.

“... humanity has a chance to reclaim its future. Not by placing its destiny in the hands of some
so-called intelligent mechanism, but by systematically producing the tools that will enable it to
shape itself into intelligent communities, capable of negotiating the stormy seas of change.” -
[Levy p. xxv] [?]

In contrast to traditional libraries, the digital commons is global and under continual, 24/7 expansion
and revision. And, in sharp contrast to the “tragedy of the commons” often cited in the literature, this is
a commons without a necessary tragedy; indeed, as its use grows, Metcalfe’s Law (which holds that the
usefulness, or utility, of a network is proportional to the square of the number of users) will amplify its effect.
The digital commons will provide new opportunities for writing, scholarship, reading, and learning.

... primary and secondary materials will interact more powerfully than before as both are online
side by side. Scholarly discussions will quote the original by pointing to it, and leave the reader

Available for free at Connexions <http://cnx.org/content/col10600/1.10>
to explore the original context, not just the few words or sentences most apposite. Conversely, texts will acquire structured commentaries not by single hands but organized out of the work of many. - [O’Donnell, pp. 132-4][7]

Indeed, this new format turns out to be similar to some of the modern (or postmodern) ideas in literary, social, and philosophical theory. Landow, Haraway, Hayles, and others have written on this.

Two pillars support the emerging digital commons. The first is a common technology framework for sharing information provided by hypertext, HTML, XML, and the WWW. The second is a common legal framework for sharing information provided by open-access licenses.

Open-access takes its inspiration from the free software and open-source software movements, in which communities of programmers create software such as the Linux operating system, Apache web server, and Mozilla family of browsers and mail tools. When a community is successful, a high-quality piece of work emerges from the open development process, thanks to many hands to do the work, many eyes to conduct a constant peer review, and pride of authorship and contributions to the community.

The most important feature of Linux, however, was not technical but sociological. Until the Linux development, everyone believed that any software as complex as an operating system had to be developed in a carefully coordinated way by a relatively small, tightly-knit group of people. . . . Linux evolved in a completely different way. From nearly the beginning, it was rather casually hacked on by huge numbers of volunteers coordinating only through the Internet. Quality was maintained not by rigid standards or autocracy but by the naïvely simple strategy of releasing every week and getting feedback from hundreds of users within days, creating a sort of rapid Darwinian selection on the mutations introduced by developers. To the amazement of almost everyone, this worked quite well. . . . I expect the open-source movement to have essentially won its point about software within three to five years (that is, by 2003-05). . . . At that point it will become more appropriate to try to leverage open-source insights in wider domains. - [Raymond p. 194][7]

In addition to a common framework for developing the software, what makes open-source software projects work is a common legal vocabulary for sharing software called an open-source license. The primal example is the General Public License (GPL) developed by Richard Stallman for the GNU project. Without the open-source license enabling anyone to use and modify the software, it would be impossible to build a community of programmers. For more, see the papers by Stallman, Raymond, Boyle, Lessig, and others.

To power the digital commons, a number of open-content licenses have been developed for information resources, the most applicable to our needs being the Creative Commons license. An open-licensed digital commons turns the current intellectual property regime of publishing on its head. Now, an author can retain their copyright to their work and license it non-exclusively for use in the digital commons via a Creative Commons license. This allows other authors to adapt, improve, or otherwise contribute to the work (for example, fixing broken hyperlinks that plague the WWW today). This can be carried to the extreme with an open-licensed wiki system. For example, in Wikipedia (wikipedia.org) anyone in the world can contribute and edit encyclopedia entries with a click in their browser.

3.6 Connexions: A Digital Commons for Teaching and Learning

The real roles of the professor in an information-rich world will be not to provide information but to advise, guide, and encourage students wading through the deep waters of the information flood. Professors in this environment will thrive as mentors, tutors, backseat drivers, and coaches.
- [O’Donnell, p. 156][7]

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[^3]: http://wikipedia.org

Available for free at Connexions <http://cnx.org/content/col10600/1.10>
To make things concrete, we now describe one particular experiment in this third wave of information technology targeted at education. Connexions (http://www.cnx.org) is so-called because it aims to connect information and ideas within the commons (using hypertext) and also to connect the people using the system into communities. Connexions is inter-disciplinary, inter-institutional and involves both professionals and amateurs, as well as professors, teachers, students, and the public.

Connexions is a digital commons of scholarly materials plus an open-source software toolkit to help authors publish and collaborate, instructors rapidly build and share custom courses, and learners explore the links among concepts, courses, and disciplines. The design of Connexions is based on a set of intuitions that are shared by a remarkably wide range of academics: that knowledge should be free and open to use and re-use; that collaboration should be easier, not harder; that people should get credit and kudos for contributing to research and education; and that concepts and ideas are linked in unusual and surprising ways and not just the simple linear forms that textbooks present.

Connexions creates “modules” of information—smallish documents intended to communicate one concept, one procedure, one set of questions about something. String a bunch of modules together, and you have a course, or weave a curriculum entirely of your choosing. Connexions directly challenges the current notion of a “textbook” by exploding it and asking different people to create its parts in a semi-structured but re-configurable manner, rather than having a single Maestro do it all and take all the credit.

The hallmarks of Connexions include:

- **collaborative workspaces** that support collaboration and community building throughout the authoring, course-building, and learning processes;
- **semantic content markup** in XML hypertext that provides a common technology framework for sharing and re-using materials;
- **Creative Commons licenses** that provide a common legal framework for using, modifying, and disseminating the content;
- **content quality assessment** using distributed, post-publication peer review;
- an attribution system to give credit to original authors and to those who add value.

Connexions is an inter-institutional endeavor. For example, a growing global community of electrical engineering faculty and researchers in the area of digital signal processing (DSP) from Rice University, University of Illinois, Georgia Tech, the University of Michigan, the Ohio State University, Polytechnic University, Cambridge University, Technical University of Norway, and the company National Instruments is collaboratively developing a free, open-access DSP course in Connexions.

Note that the Connexions system can be used in a distance education system, but that is not its main purpose. It is an information system that can be used instead of or in addition to a traditional book in a traditional class. It can also be used for self-study, distance education, continuing studies, home schooling, industrial training, or professional credentialing. The basic philosophy is completely independent of level or discipline. It should be ideal for K-12, college, or graduate school. It will fit humanities, social sciences, natural sciences, engineering, architecture, music, business, medicine, law, or art history. It should interface naturally with the modern digital library. It will certainly be multi-media and allow experiments and demonstrations to be run and “discovery based learning”, “problem-solving based learning”, and “concept based learning” to take place.

Connexions can make high quality material available to all students and all educational activities all over the world with fairly inexpensive equipment. If developed properly, it can significantly reduce the “digital divide” that separates the information “haves” from the “have nots.” Because it is platform or hardware independent, it can be used with many new projects to provide internet access more broadly.

The third transition that we are in the middle of just now will probably have two phases, much as most disruptive technologies. As we move from the traditional printed book, lecture, laboratory, and library paradigm to an electronic and digital system using the web, internet, and modern magnetic and optical storage devices, the first phase will do the old job better. We will put our courses on the web. We will put our books on the web. We will scan books and build digital libraries. But, most of this material was

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4 http://www.cnx.org/
written for traditional publication and use. It was written by authors with traditional skills and traditional mind-sets but using modern tools and media.

The second phase of this transition will use the full power of semantic tagging, metadata, and XML together with a better understanding of how humans process information in their brains and how we all learn. In the first phase we take material that was created to be used in traditional media and put it “on the web”. We put the book that we were writing into Connexions. We scan books and put the digital information into the digital library. In the second phase we will create information packets specifically for Connexions, XML, or the Semantic Web. We will have a mixture of text, virtual labs, demonstrations, etc. that cause us to teach and our students to learn in a different way. That will, in turn, cause us to create material in a different fashion.

In the transition from an oral tradition to literacy and a written tradition, the first phase was just a better version of the old. Authors wrote down the stories that they earlier told. Readers read aloud to “hear” the stories as they had before. As the technology of writing developed, people learned to read silently and authors wrote to be read, not heard.

We currently seem to be in the middle of the first phase of our modern transition, but are beginning to see an image of the second. Although there is a great temptation to jump to the end, we will probably need the experiences and experiments of the first phase to best develop the second phase and minimize the negative “unintended consequences”. We will need to put our books and articles into Connexions and scan our traditional library books to create our digital library before we will know how to create material specifically for digital use.

3.7 Conclusions

Daniel Headrick argues “that the information revolution in which we live is the result of a cultural change that began roughly three centuries ago, a change as important as the political and industrial revolutions for which the eighteenth and early nineteenth centuries are so well known.” We are now seeing this revolution reach a climax.

From our studying and reading about writing, literacy, and the printing press, we have concluded that we are indeed in the midst of a third major information transition that will be as important and startling as the first two. We want to create a system or a setting in which this new world can flourish and be a positive contribution to humanity. We want it to be as close to the way the mind works as possible, while allowing future extensions beyond what we can now predict regarding new theories of learning, teaching, and discovery, as well as new information technologies.

The Connexions Project has been designed to be sufficiently open and flexible to allow for these future unknowns, yet specific enough to have standards for current implementation. The ability of XML to control both form and content is essential to the spirit and future of Connexions. The modular format with hypertext linking seems to fit the way the mind works, yet allows for future discoveries in cognitive science and learning theory. The digital commons will allow input from top experts in any field and a post-review system will allow identifying the best material without restricting input.

The current classroom lecture method used in schools, colleges, and training programs results in students’ having a difficult transition to self-learning. The use of Connexions could greatly reduce that transition. It could be a true life-long learning system. This single system can be used for teaching, learning, and discovery and be open to the invention of unpredictable new technologies. If these statements are true, we will indeed have a third transition as important as those created by writing and the printing press.

3.8 Acknowledgements

For opening the doors to the histories of writing and books, we thank Profs. Albert van Helden, Anthony Gorry, and Werner Kelber of Rice University along with the authors whose books are listed below. For the development of Connexions, we thank Don Johnson, Bill Wilson, Chris Kelty, Brent Hendricks, Ross

Available for free at Connexions <http://cnx.org/content/col10600/1.10>
CHAPTER 3. THREE SPECIAL EVENTS IN THE HISTORY OF TECHNOLOGY FOR CREATING, ORGANIZING, AND SHARING INFORMATION

Reedstrom, Douglas Jones, and the staff of Connexions. For organizational planning, leadership, and financial support, we thank Robert Maxfield, William Sick, Burton McMurtry, Michael Stewart, Tom and Nancy Eubank, Chuck Henry, Geneva Henry, Gil Whitaker, Katie Cervenka, Malcolm Gillis, the administration of Rice University, and the Hewlett Foundation. For help in rewriting this paper, we thank several friends and colleagues. We also acknowledge and thank our collaborators at other universities and foundations in the US and all over the world and acknowledge our debt to the many other similar and complimentary projects.

3.9 All References

For technical reasons, there are two reference sections in this paper. This first section is an extended reference list in text format in the approximate order in which they are relevant in the paper. The quoted references within the paper are repeated below this list under "References" so that links from the quotes to the references work.


Available for free at Connexions <http://cnx.org/content/col10600/1.10>
47. W. A. Wulf chair, “Choosing the Future: Information Technology and the Research University”, Report

Available for free at Connexions <http://cnx.org/content/col10600/1.10>
CHAPTER 3. THREE SPECIAL EVENTS IN THE HISTORY OF TECHNOLOGY FOR CREATING, ORGANIZING, AND SHARING INFORMATION

from the ICT Project, published by the National Research Council. 2002.


A longer list of references is available from the authors.

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Chapter 4

Digital Learners: How Are They Expanding the Horizon of Learning?

Note: This module has been peer-reviewed, accepted, and sanctioned by the National Council of Professors of Educational Administration (NCPEA) as a scholarly contribution to the knowledge base in educational administration.

4.1 Evolving Literacy for Digital Learners

 Literacy in the 20th century has expanded from an emphasis on comprehending page text and listening to lectures to include a wider, more encompassing tool set, requiring more activity-based competencies. Though previously didactic learning was the mainstay in the classroom, it has since been recognized that other learning styles may be more suited to the online learning experiences and that the expansion of learning may begin early on. Prensky (2001) claims that “digital natives” having had exposure to technology from an early age, now may have brains that are wired differently. In this claim, information is processed in a random access manner, rather than linear, yielding to a simple “stepping stone” effect in lieu of the winding “sidewalk-model” of thinking. Though in either case, this is still considered logical thinking. Youth have now added robust multi-tasking to their learning skill set. In support of this adaptation, a 2003 survey of 1,065 U.S. parents requesting information concerning computer usage found that computer usage generally began in the parent’s lap by age two and by age three, children could control the mouse, load a CD, and turn on the computer (Calvert et al., 2005). This suggests that students are learning to incorporate digital tools about the time they are acquiring and incorporating language and verbal skills yielding the incorporation of these skills early on.

 Beyond comprehending text and early computer skills, learners must be competent in image and screen navigation in order to perform as fully literate (Brown, 2000). Twenty-first century literacy demands the ability to use technology, including visuals and audio segments to enhance personal learning and to communicate more effectively with others (Looney, 2005). Literacy now encompasses more than mere reading.

1This content is available online at <http://cnx.org/content/m17218/1.2/>.

Available for free at Connexions <http://cnx.org/content/col10600/1.10>
and comprehending thoughts from text. Computers, DVD players, cell phones, game consoles, and iPods (Apple Computer) are now the norm in students' pre- and post-school day activities. Choices abound within the video game world. Though these claims are not yet universally understood and accepted, initial research into new literacies promotes the notion that a different skill set is required for building competencies online. The repeated findings of "no significant difference" between online and traditional course offerings in the broad spectrum indicate that the act of learning may be changing to incorporate this expanded instructional style (Bernard, Abrami, Lou, & Borokhovski, 2004; Bernard, Brauer, Abrami, & Surkes, 2004; Clark, 2001; Russell, 1999; Smith, Clark, & Blomeyer, 2005).

The United States National Research Council found in a two-year study that youths require a level of control over their learning in order to make needed transfers of information (Huffaker & Calvert, 2003). Similar to researching on the Web, students would prefer to follow multi-topics in multi-logical directions much like brainstorming techniques and lateral thinking introduced by Edward DeBono (1967) rather than being fed a constant unidirectional message. These learners preferred a speed with which Prensky deems "twitch speed" translating to hit it hard and fast, and then proceed. Additionally, "digital natives" appear to prefer graphics first with text to support unclear content rather than the "digital immigrant" method of illustrations to augment text (Prensky, 2001). The idea that information is fluid and informed by multiple inputs which may be updated instantaneously when discovery occurs is not a foreign concept to 21st century learners. Brown dubs these learners "bricoleurs"[2] evolving from a term first used by Claude Levi-Strauss (Brown, 2000, p. 14). Bricoleurs have the ability to take some small piece of information and then use it to create something meaningful for themselves.

Brown further notes that today's adolescents have moved their preferences for knowledge acquisition from non-ownership or semi-ownership to self-ownership, from linear to multi-linear or lateral, and from becoming unresponsive when they do not understand to "lurking then trying" (Brown, 2000). Perhaps most importantly, "digital natives" are network builders, reaching out for both information and for social contact. With access to anyone, anytime, anywhere at the end of a computer, cell phone, or Blackberry (Research in Motion Limited), these students are better than ever before at building a community of learners naturally (Brown, 2000).

The new science of learning, as advocated by the National Research Council and the National Academy of Science, recognizes the importance of allowing children to take control of their own learning experiences [Bransford, Brown & Cocking, 1999]" (Huffaker & Calvert, 2003, pp. 325-6). The terms "active learning" describes the learner taking an active role in the learning process, "metacognition" is defined as the student monitors and regulates their own learning, and "transfer of knowledge" as learners apply information learned to multiple settings and tasks, are now a part of the educational vernacular (Huffaker et al.). Digital gaming may bring all of these elements into play (Gee, 2005.)

Calvert, Rideout, Woolard, Barr, and Strouse (2005) suggest that when young children spent time with the computer, it most often involved game play. Though "digital immigrants" may profess gaming to be a waste of time, James Paul Gee demonstrates that good games contain multiple elements of current learning theory. Good games provide players with stimuli and allow responses, positively reinforcing players and providing motivation for repeated response. This is indicative of behaviorism and operant conditioning.

Research into areas such as, internal locus of control, problem solving strategies, visual and divided attention, and spatial abilities demonstrates the impact of action video gaming on cognitive abilities. Blumberg and Sokol (2004) found that older children and children who described themselves as frequent video game players tended to rely more heavily on internal strategies such as reading instructions or trial and error than external strategies such as asking for help or watching someone else play when learning a new game than did younger children and those that did not play video games. The most frequently used internal strategy was trial and error, thereby driving a strong need for logical and intuitive interface designs for good programs. Greenfield, Dewinstanley, Kilpatrick, and Kaye (1994) indicate that strategies employed by video game players may transfer to other areas that require split attention. Green and Bavelier (2003) provide evidence that action-game training led to greater performance improvement in visual attention to multiple fields which

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2 http://www.edwdebono.com/debono/lateral.htm

Available for free at Connexions <http://cnx.org/content/col10600/1.10>
switch rapidly, leading to detectable effects on new tasks within a short time period. (p. 536). Though when students are assessed for both static and dynamic spatial ability, gaming led to significant improvement in dynamic spatial skills in specific subjects. (p. 26). To cap off these findings, Crawford (2006) notes that there is a tendency for positive multi-tasking ability differences in those that complete online courses versus those that do not, suggesting that those who complete online courses have a higher level ability.

Dickey (2005) found that in the evolution of video game development, programs have moved from a player outside the game to a player inside the game format. Though online gaming communities have broadened access to this engaging construct, the educational community has yet to embrace it on a wide scale.

The North Central Regional Educational Laboratory (NCREL) described online reading comprehension as utilizing a different skill set compared to traditional print comprehension. Though traditional comprehension encompasses the ability to locate and filter materials, and share the findings, online reading comprehension has added to these skill sets the ability to navigate through systems, to evaluate, to synthesize information and then to communicate findings in new formats. (Leu, Castek, Hartman, Coiro, & Henry, 2005)

Added to online comprehension ability, recent cognitive research notes a new understanding of the way memory functions. Multiple studies, such as Mayer and Moreno’s (1998) investigation on split-attention, demonstrates that memory has both a visual and an auditory component. In this particular study, findings indicated that multi-media presentations with both visual and auditory components can improve retention.
4.2 Summary and Analysis

Analysis of the body of research attempting to unmask the mysteries of the shift in education since the dawn of the digital age points toward both curricular and instructional impact. To place all of this into perspective, five themes running through research have evolved. These themes suggest that digital learning is being injected into story time and all other portions of very young children’s learning through computers and computer games. Learning is expanding to include high doses of visual and auditory interactive materials. Good computer games provide good learning opportunities to enhance transferability and retention of content, and learners want to maintain control over their own learning. The young learner seems to be accepting the digital learning at an expanded rate of speed which suggests that digital learning is highly compatible with these young learners’ learning style. These five themes impact the curriculum and the instruction.

Curricular Impact

A new type of literacy relying less on text, but requiring integration of images in the form of both graphics and video will be necessary for students to communicate effectively. Literacy no longer encompasses only what is taken in from presented material, but also includes the production of materials, such as the products yielded through Bloom’s Synthesis Level. Written English language has evolved into two completely competing genres, the formal language of business and school, and the abbreviated and initialized version utilized in text messaging and other digital formats.

Educators have acknowledged the optimal time for learning content may be an internal process tied to individual development. Giving students a choice in how and when they learn content should also be considered within the curriculum. Information synthesis from multiple sources is required with evaluation leading to the production and communication of original thoughts. Though these skills have long been valued at the graduate study level, the sheer volume of new information produced daily requires acquisition at a very early age.

Instructional Impact

The preponderance of random-access processes to discover information through multiple topics in multi-directional directions has rendered the more traditional instructional method of linear presentation dull and not at all motivating. Further, students accustomed to having their hands on the controls, so to speak, utilizing mostly the trial and error method of learning may feel that a traditional classroom is much like waiting in line for their turn at the wheel. Applying the theory of good gaming design to instruction with the learner being provided appropriate stimuli and allowed responses, and with reinforcement, both positive and negative immediately following each step could prove to be more motivating, thus more effective. Instruction delivered in such a manner that it places the learner inside the lesson rather than outside more closely aligns with digital natives’ thinking.

Since memory has been found to have both visual and auditory components (Mayer & Moreno, 1998), multimedia enhanced instruction should improve retention. Emphasis on image and sound over text alone will more closely mimic the inputs most students receive outside of the classroom. The multi-dimensional nature of the digital world lends itself to network building. Social networks encompass a significant part of the world of an ever-increasing number of students at younger and younger ages. Harnessing the skill for reaching out to others may provide the ability to build informational networks with experts outside the classroom.

4.3 Suggestions/Practical Advice

Curricular suggestions. A review of scope and sequence for various subjects at various educational levels will reveal an emphasis on subject area information to be delivered to students within a particular timeframe. References to page numbers in texts that were probably outdated at time of publication (particularly in the areas of science and world events) guide teachers to curricular decisions that vary little from the same format utilized in schools since the industrial revolution. A response that would more closely take into account the

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4http://www.center.k12.mo.us/edtech/blooms/synthesis.htm
5http://www.lps.k12.co.us/schools/arapahoe/fisch/didyouknow/didyouknow.ppt#260

Available for free at Connexions <http://cnx.org/content/col10000/1.10>
curricular analysis herein would focus on process skills, incorporating a kind of “twitch speed” for learning. A scope and sequence that would determine information management, evaluation, and synthesis skills to be taught in a developmentally appropriate sequence would be a first step in changing traditional practice.

Game players are encouraged to place themselves within the action, to be producers rather than consumers, to take risks, solve problems, think systemically and laterally, and perform to reach competency, providing the opportunity to self-select levels of difficulty, get additional information on demand and reward levels of solutions (Gee 2005). Most importantly, multiple studies have demonstrated that the influence of video game play has altered the way individuals learn.

Subject area content should be outlined in overarching themes that allow for integration across disciplines and flexible timeframes for discovery. Students should be challenged to investigate provocative, age appropriate questions that motivate them to inquire and research for the answers and then communicate what they have found with others. The ability to quickly identify relevant sources of information and to synthesize this information into appropriate solutions is a critical skill for student to master if they are to succeed in an information-rich environment.

Professional development with teachers should focus on their ability to manage and evaluate both information and students in the process of acquiring this information. Since most teachers are still of the digital immigrant generation, they use digital media for information gathering rather than production. Many are not comfortable with the skills of online researching and most are extremely lacking in the ability to evaluate the validity of the information gathered. Digital immigrants attended school when written materials were generally peer reviewed before publication; therefore the assumption was that if it was written it was true. Few understand that anyone can put anything on the web even if it is not creditable. Students must be taught how to filter what they see online or hear through other media channels for reliability and validity.

Teachers must also be taught how to evaluate student products. Students, more adept at multimedia tools than their instructors, can often create phenomenal productions largely devoid of any depth of purpose. Instructors must be trained to get beyond the glitz of the package to the content and push students to achieve both.

Instructional suggestions. Traditional instruction where content is delivered by any means then reiterated to the instructor for evaluation provides a linear flow from teacher to student and back. A model that places the student in a more active role of both learner and instructor would more closely align with the multidimensional digital world to which most learners have now become accustomed and foster the filtering of information for validity and reliability. The teacher provides a stimulus, which the student then begins to investigate using various structured methodologies, such as frequent feedback that spurs students along the right path or steers those who stray back on track thus allowing the learner to utilize the internal strategy of trial and error. Guided peer review at designated stages of completion complements the need to network. Publication of exemplary works to a wider audience whether it is the local community or the World Wide Web offers a reason to monitor product quality. Most importantly, evaluation should take place throughout the entire learning process and should not be limited to the completion of a rubric at the project’s end.

4.4 Conclusion

The manner in which students are taught will not truly change until the manner in which we teach and evaluate students change. Multiple studies suggest moving students from consumers of information to producers of information. This, above all else is the key to engaging digital learning. However, until teachers are trained to expect and accept content gathered through social networks with emphasis on teaching students how to check validity and reliability of the web, the full power of the digital natives can not be released or expanded. Teachers must allow students to publish broadly then promote peer and expert outside evaluation. Digital immigrant teachers will require support and training before they feel competent to allow students the freedom to explore their full digital capabilities. The Digital Opportunity Measuring Stick 2005 [5] confirmed that the majority of America’s high school students are “digital natives” (Lazarus, Wainer, & Lipper, 2005).

Available for free at Connexions <http://cnx.org/content/col10600/1.10>
Research demonstrates that these new learners come to school with budding skills in new forms of literacy, possessing different strengths in cognitive ability, and finding motivation in different forms than did their predecessors. These new learners are instructed by teachers who, for the majority, spent childhoods engulfed in television programs that fed information for consumption, rather than interaction, omitting the choices and short snippets that lead to further discovery. New and different learning styles are evolving into new learning theories, new literacy, and new types of learners which research confirms are cognitively impacted by digital experiences. This will surely require educational facilitators to revisit and ultimately expand the horizon of educational content and delivery.

References


Active Website
4. Shift Happens http://www.lps.k12.co.us/schools/arapahoe/fisch/didyouknow/didyouknow.ppt#260
   http://thefishbowl.blogspot.com/2007/03/over-two-million-served.html

Available for free at Connexions <http://cnx.org/content/col10600/1.10>
CHAPTER 4. DIGITAL LEARNERS: HOW ARE THEY EXPANDING THE HORIZON OF LEARNING?

Available for free at Connexions <http://cnx.org/content/col10600/1.10>
Chapter 5

Reading/Language Arts Kidspiration in the Elementary School Classroom

5.1 Introduction

Kidspiration is a new technology that helps children develop their thoughts and new information with a graphic organizer. The students will begin to recognize symbols in place of words to help them navigate through each subject. Teachers can use this tool for all subjects and each section of Kidspiration has a variety of templates to help the students organize and understand the materials necessary for a particular unit. Students are connecting with their subject materials through hands-on experience through technology. The product Kidspiration is a new way to develop stronger thinking skills and new methods of comprehending other subjects including: Social Studies, Reading/Language Arts, Math, and Science.

Kidspiration provides a cross-curricular visual workspace for K-5 learners. Students use visual tools combining pictures, text, numbers and spoken words to develop vocabulary, word recognition, comprehension, reasoning and problem solving skills”. (Inspiration.com/kidspiration)

The students studying Reading and Language Arts will develop stronger reading and writing skills through Kidspiration. Kidspiration offers students graphic organizers to help them complete their reading and writing tasks. The software provides children character webs, story plot organizers, and basic brainstorming strategies.

Our mission is to understand how Kidspiration is helpful for students in Reading/Language Arts. The students should be able to utilize this tool during class and outside of class. The main use of this software for Reading/Language Arts is to strengthen students word study, literacy, organizing thoughts, remembering elements of thoughts (characters, story plot, setting, etc...), and basic comprehension.

5.2 Kidspiration 101

Kidspiration is a workspace that the student can work independently or in collaborative groups. This workspace allows children to explore, expand their thinking, and creatively learn about each individual subject. This interdisciplinary technology helps students to navigate and work simple applications in order to complete each task. Kidspiration is a fun way of keeping the children focused and interested on the subject. This application is important for children because it is an easy method to organize and develop new ideas. The program has instructions for the students and symbols to help the students comprehend where everything this. The students can add a personal touch by selecting words, symbols, and pictures to describe their workspace.

1This content is available online at <http://cnx.org/content/m18114/1.1/>.
 CHAPTER 5. READING/LANGUAGE ARTS KIDSPiration IN THE ELEMENTARY SCHOOL CLASSROOM

The Kidspiration Software is available in a package which includes a Getting Started Guide, the installation CD, and a Reference Card. The software is also available for downloading from the Inspiration Website. The software costs around $70 and up depending on the package chosen. The website has several resources available for purchasing and viewing to help with the educational process using Kidspiration. There are lesson plans, activities, and examples to help the students and teachers navigate around this technology.

There are several websites that give examples and templates of each subject. For Reading and Language Arts, the resources available will help with different writing skills, reading activities, and word identification. Below are several websites from schools and experts who have worked with Kidspiration for teacher inspiration.

How to use Kidspiration in the Classroom: http://www.northcanton.sparcc.org/~elem/kidspiration/presentation/handout.html

5.3 Kidspiration in the Classroom

Teachers can integrate Kidspiration into every aspect of their curriculum because it allows for incorporation of visual learning throughout your lesson plans. There are several ways to use Kidspiration in the classroom when teaching Language Arts. Kidspiration provides a variety of helpful ways to organize stories, work on phonemic awareness, learn how to write more efficiently, and many more options. The Kidspiration website also makes it easy for classroom teachers to attend to their state standards because there is a "standards matches" page providing every state's standards.

http://www.inspiration.com/Standards-Matches/Kidspiration

Kidspiration provides students with visual learning that is proven to improve their conceptual knowledge of subjects. The different views allow students in the classroom to see things in pictures and words using graphic organizers and in integrated writing view they build on letter and word skills. The symbol categories are aligned with K-5 curriculum so they are always focused on relevant information. Kidspiration is innovative because it combines student's visual thoughts with written expression. The symbols are paired with their words to strengthen student's literacy.

Some potential problems could be students need to be familiar with how the program works in order to learn it efficiently. A teacher would need to have a lot of time that they could dedicate to using the Kidspiration program so students become familiar with what the icons mean and are able to use it on their own successfully. Teachers also need to know the answers to the lesson they are teaching because Kidspiration does not correct wrong choices made. Students and teachers are responsible for making all of the corrections on the website.

5.4 Notable Examples

• The official website provides several good examples of how Kidspiration can be introduced and utilized in the classroom. A good example is called "Writing my First Report", this lesson provides students with the opportunity to organize their thoughts and begin the writing process. The students are asked to read a book about an animal and then they are asked to create a web including where the animal lives, what it eats, how it moves and how it reproaches. Students fill in these categories and use them to organize and develop a simple essay. After the "picture view" is complete switch to the "writing view" and the teacher aids students in creating complete simple sentences.

http://www.inspiration.com/LessonPlan/Writing

• Going on a Bear Hunt Story Investigations Activities- In this example there are several different Kidspiration graphic organizers that relate to one another. The teacher starts by reading several different versions of the fairy tale Goldilocks and the Three Bears. Students are going to compare and contrast versions of the same story, describe characters and setting, and use supporting details to identify and describe main ideas, characters and setting. The first activity involved a simple character template which is used to describe the character in Abuela and the Three Bears. The students then read "Somebody and the Three Blairs" and complete a comparison stories template. The students have an opportunity to be creative and create an
alternate ending to the stories. The finally Kidspiration tool used is the story element activity where they combine skills to compare and contrast setting, characters and plot.


- An important skill for students to learn in third grade is how to pick a “just right” book. As students become more confident and capable they use certain strategies that aid them in how to be a good reader. One of these important strategies is for readers to ask questions before, during, and after reading the text. A good example of using Kidspiration to utilize this strategy is found at the website listed below. Teachers have the opportunity to model a question web allowing students to ask questions before, during, and after a story. After reading the selection teacher can go over how questions were answered in the text. Teachers may use this activity for guided practice of allow students to complete the question web independently while reading.

http://www.inspiration.com/LessonPlan/Question

- Students can use a Venn Diagram to practice their rhyming words. In this example students read Green Eggs and Ham by Dr. Seuss. They are asked to think about the rhyming words. Students then use Kidspiration to complete their Venn Diagram independently. Teacher checks work, prints out finished diagram and include it in their Language Arts journal for rhyming practice.

http://www.lessonplanspage.com/LACIMDRhymingWordsGreenEggsAndHam1.htm

- In second and third grade students are all working on improving their comprehension. Kidspiration offers a way to organize your thoughts and information about a story. The title and author of the story should go in the center. Students can summarize the plot in the “What is happening in the story” section. Other categories could include “What is the writer trying to say?” “Who are the main characters?” and “Where does the story take place”. In the web there will be a combination of pictures and text. When you switch to the writing view there are more details about each subject. This can help students to analyze what they have read and review between readings. A good example can be found here:

If you go to this website and click on The Lion, The Witch, and The Wardrobe example at this link...

http://www.inspiration.com/Examples/Kidspiration#Reading_and_Writing

- Kidspiration can also be very helpful for teaching word study. In this lesson the teacher is focusing on the “ea” sound. The students will work together and they will get to see many words in the "ea" sounds. The students will explore the words and discovery how many different sounds and words these vowels are in. The partners will match the object to the matching sounds using Kidspiration. On their worksheets, students will get to write down all the words that they heard on Kidspiration. Kidspiration is an organized and easy way to allow all children to hear the sounds and develop a letter/sound connection.


5.5 Tips for Teachers

- Plan ahead for these lessons. Go through what you expect the students to do and make an example.

- If you are struggling with basic directions the tutorial found here, which provides simple instructions of how to navigate, label, save and many more helpful tips:

http://summit.k12.co.us/SummitTechnology/TechnologyImages/KIDSPARATION.pdf

- Have plenty of examples planned so if students are struggling to find answers you can guide them.
Chapter 6

Tech Module: Using Comic Life in the Classroom

Introduction

Today graphic novels and comic books are more popular than ever before. Over the years, they have inspired countless films, cartoons, television series, and other artistic forms, such as pop art and pulp literature. Also, numerous classic literature texts have been adapted in the graphic novel medium: Beowulf, King Lear, The Merchant of Venice, Dracula, Treasure Island, Huckleberry Finn, and Tale of Two Cities, just to name a few.

It is clear that the medium is in high demand, which has led educators all over the globe to begin considering appropriate graphic novels as viable texts for teaching. So why not channel the popularity, power, and creativity of graphic novels and comic books into a learning opportunity? Why not allow students to create their own? The engaging format and popularity among youths suggest that the graphic novel is a valuable medium with which to reach students.

What is Comic Life?

Comic Life is a program created by plasq for Mac computers, first released in April of 2005, and last year a version for Windows was also released. Comic Life is a user-friendly program that allows users to create a comic using photographs or images. The program is easy to learn, and both the artistically challenged and the artistically inclined can enjoy using the program.

You can use any JPEG format images, which means you do not have to use only photographs. For those who are especially artistic, hand-drawn illustrations can be scanned in the JPEG format. Your creations can be exported in .Mac, html, QuickTime, and JPEG formats, allowing you to post them on web sites, blogs, or send them via email. If you would like professional printing, you can send finished comics to the iPhoto Kodak print service with a link provided in the program.

How Do I Use Comic Life?

Creating a comic with the Comic Life program is easy. Simply select a template, drag images from your library (embedded in the program menu), and have endless fun adding effects, dialogue bubbles, text boxes, and titles. The comic can be as many, or as few, pages as you wish. Templates, styles, and fonts can differ from page to page because you create each page separately. You can also add effects to images to make them look like comic book images. The following are two links to help you learn how to use Comic Life. The first is a quick help sheet, covering the basics. The second is the complete manual formatted in pdf.

Short tutorial: www.macinstruct.com/node/69

1This content is available online at <http://cnx.org/content/m18037/1.1/>.
2http://www.macinstruct.com/node/69

Available for free at Connexions <http://cnx.org/content/col10600/1.10>
If you are interested in checking out Comic Life, you can download a 30-day free trial or purchase the program at http://plasq.com/comiclife/ (Mac users) or http://plasq.com/comiclife-win (Windows users).

**How Can I Use Comic Life in My Classroom?**

With Comic Life, students can create their own comics and engage in the creative power and learning benefits of the medium. Comics can be created by students of all ages and can be used in all subject areas. Creating comics requires students to focus on how and why information and ideas are presented, rather than simply what is presented. The tool also allows students to develop high cognitive skills, given that they must accurately and concisely represent words visually. In order to compose even a one-page comic, students must understand concepts on a deeper level, requiring them to organize, analyze, and synthesize information. Thus, Comic Life can engage students both cognitively and creatively.

Comic Life presents a plethora of learning possibilities! It can be utilized for myriad purposes: illustrate concepts, compare/contrast concepts, character analysis, plot analysis, present an argument, represent or express interpretations, show cause and effect, demonstrate processes, and so much more. Teachers can also join in the fun, using Comic Life to present information in a more visually appealing and interesting format.

The beauty of Comic Life is its flexibility. Projects can be done individually or in groups and used for long-term or short-term assignments. Activities can be as simple as summarizing main points or as involved as creative writing. While I was hard-pressed to find specific lessons utilizing Comic Life, I found many lessons involving other forms of comic creation, which can easily be applied to the Comic Life program. The following are a few of my favorite lessons:

**Comic Makeovers: Examining Race, Class, Ethnicity, and Gender in the Media**
http://www.readwritethink.org/lessons/lesson_view.asp?id=207

The Comic Makeovers lesson is tailored for 9-12 graders and can be used in English, history, journalism, or other relevant social studies classes. This lesson involves students exploring existing comics that use stereotyped representations of race, gender, class, and ethnicity. Students then “re-envision” them by creating new comics with more realistic images.

**Ride the Rock Cycle**
http://sciencespot.net/Pages/classearth.html

This is a fun earth science activity for grades 6-8, which illustrates how Comic Life can be used in science classes. Students explore the rock cycle and then create a story about “Roger, a metamorphic rock,” depicting and explaining “transitions” he’s gone through in his life.

**Teaching Literary Devices**
http://www.teachingcomics.org/index.php?option=com_content&view=article&id=73%3ATeaching+Literary+Devices+with+Comics&catid=36%3ALesson+Plans&Itemid=57

This lesson is for English classes, grades 6-12. Students use Comic Life to create comics using literary devices taught in class. Teaching Literary Devices is a good example of a short-term activity utilizing Comic Life.

**All the News That’s Fit to Print**
http://artsedge.kennedy-center.org/content/2337

This lesson is geared toward ESL students in grades 9-12. The lesson involves students reading several variations of Cinderella and then creating a newspaper, including a comic section, on the story. This lesson illustrates how creating comics can help English Language Learners and could be easily adapted to use Comic Life.

**These lessons do not provide finished products.** Here are a few links that show you what educators and students have done with Comic Life:

Government in the Colonies
http://www.edtech.sandi.net/old305/handouts/iphone/deneve%20AR/Comic.html

Available for free at Connexions <http://cnx.org/content/col10600/1.10>
Gold Rush
http://www.edtech.sandi.net/old305/handouts/iphoto/gold/Comic.html

Examples on plasq.com (Not all of these are education-related. There is a really good one toward the bottom of the site that presents a very interesting idea: an interview of a poet, by Liz and Jem.)
http://plasq.com/comiclife/gallery/

What are the benefits of Comic Life?
1. Engaging. Comic Life activities can replace some of the less interesting but common tasks, such as timelines, plot summaries or story mapping, and listing information.
2. Utilizing multiple skill levels. Composing a comic can involve a range of skills and cognitive processes. Depending on the assignment, students may have to organize, analyze, and synthesize information. For example, having to compose a comic exploring the setting of a text requires students to visually compose their interpretation of the setting, rather than simply compiling descriptive words.
3. Appeals to multiple intelligences. Creating a comic with Comic Life may involve composing and taking photographs, drawing illustrations, writing, creating a logical sequence of events or frames, and provides a hands-on experience. Students may have the option to work individually or in groups, and visual learners would gain a great deal from the activity.
4. Meaningful learning. Comic Life can be used in a way that allows students to relate material to their lives and take an active part in their learning. For example, students may choose to act out a text, photograph events or actions, and create a comic from the photographs.
5. Appeals to all students. Using Comic Life is not only fun, but is also allows students to design according to their own personalities and aesthetic value. For instance, there are plenty of pink styles for the girls who may not initially like the ideas of a “boys” comic.

What are the possible constraints of Comic Life?
1. Expense. Comic Life Education is available for educators. The cost of one program and license is $20, and for 25 to 50, the cost is between $200 and $300. This is a fair price in the realm of software, but considering the constant problem in school divisions, it may be hard to get funding for the purchase. School divisions that have little funding, few computers, and little technology will not be able to afford Comic Life. Although there are free sites with alternatives, these greatly limit creativity and imagination. Additionally, if you choose to print, color printing can be very expensive.
2. Format restrictions. Comic Life uses only JPEG images, which means you must have access to a digital camera, scanner, and/or an image converter program, which may add to the financial constraints, unless the equipment is already available.
3. Time-consuming. Creating comics can require a lot of time. Students will need tutorials before creating their comic. Also, taking photographs, finding existing photographs, or composing drawings can take quite a bit of time to do. The students will also need to take time carefully planning their comics before heading to the computer to realize them.
4. Simple format. While Comic Life provides quite a bit of variety in designing comics, the program is still limiting in its capabilities and uses. It is certainly not an all-purpose tool.
5. Multiple computer access. In order to make any Comic Life activity most efficient regarding time, multiple computers need to be available simultaneously. This would require reserving the computer lab for both the tutorial and the actual day of creation, which may present a problem with schools that have limited resources. Also, it is possible that it may take more than one class period to create the comic on the computer.

Tips for Teachers
1. Review the tutorials and explore the program extensively before your students use the program so you can be most helpful in helping them realize their final product. You need to understand what the program involves and what it can and cannot do to cut down on the time it takes to complete the activity.
2. Provide a tutorial and print out steps or instructions for the students so they know the program before they create their comics.

Available for free at Connexions <http://cnx.org/content/col10600/1.10>
3. Be very clear about the purpose and goal of the assignment. You must understand what you want students to do with Comic Life before unleashing them to do it.

4. Plan the process very carefully. Students will need time to brainstorm ideas, learn the program, gather or take photographs, and design the final product.

5. Have students sketch out their ideas and designs before the computer session(s). Much like typing a final draft of a paper, they should go through drafts of their designs, including captions and titles, so they know exactly what they are putting together when they use Comic Life.

6. Be careful! Comic Life can be endless fun! You need to be particularly attentive to keep the students on task and focused to make sure they are creating their comic and not just playing around.

**Additional information and resources:**

Wiki page on Comic Life
http://celia.wikispaces.com/Comic+Life

OS X Applications – Comic Life
http://www.eusd4kids.org/edtech/xapps/xapps_comic.html

Comics and graphic novels
http://mlc2006.wikispaces.com/Comics+and+Graphic+Novels

Practical Ideas
http://www.ltscotland.org.uk/literacy/findresources/graphicnovels/section/practical.asp

Available for free at Connexions <http://cnx.org/content/col10600/1.10>
Chapter 7

Podcasts in the Language Arts Classroom

7.1 Matthew Ebersole

Technology Expert Module: Podcasting in Language Arts

7.2 What is a Podcast?

The word podcast is a play on the word broadcast combined with the word iPod, says Jason Van Orden at http://www.how-to-podcast-tutorial.com/what-is-a-podcast.htm.

Wikipedia gives a much more extensive definition as follows:

A podcast is a series of digital media files (either audio or video) that are released episodically and downloaded through web syndication. The mode of delivery is what differentiates podcasts from other ways of accessing media files over the Internet, such as simple download or streamed webcasts: special client software applications known as podcatchers (like iTunes, Zune, Juice, and Winamp) are used to automatically identify and download new files in the series when they are released by accessing a centrally-maintained web feed that lists all files associated with the series. New files can thus be downloaded automatically by the podcatcher and stored locally on the user’s computer or other device for offline use, giving simpler access to episodic content.

1 Available for free at Connexions <http://cnx.org/content/m32200/1.1/>.
2 http://www.how-to-podcast-tutorial.com/what-is-a-podcast.htm
6 http://en.wikipedia.org/wiki/Digital_video
7 http://en.wikipedia.org/wiki/Download
8 http://en.wikipedia.org/wiki/Web_syndication
9 http://en.wikipedia.org/wiki/Internet
11 http://en.wikipedia.org/wiki/Webcast
12 http://en.wikipedia.org/wiki/Client_%28computing%29
14 http://en.wikipedia.org/wiki/iTunes
15 http://en.wikipedia.org/wiki/Zune
16 http://en.wikipedia.org/wiki/Juice_%28aggregator%29
17 http://en.wikipedia.org/wiki/Winamp
18 http://en.wikipedia.org/wiki/Web_feed
CHAPTER 7. PODCASTS IN THE LANGUAGE ARTS CLASSROOM

7.2.1 Where can I download podcasts?

Podcasts can be and are about just about anything and everything. One of my favorite sites, and certainly a possible source for educational materials is at http://www.npr.org/rss/podcast/podcast_directory.php.

The Education Podcast Network http://epnweb.org/ has many student and teacher created podcasts from all grade levels and subject matters to peruse.

iTunes http://www.apple.com/itunes/podcasts/ has a vast array of podcasts to download, but of course you need to have downloaded iTunes onto your computer first. These are all places to download podcasts that have already been created. However, creating your own podcast requires more work.

With the most basic of equipment, and software that is mostly free, you or your students can begin podcasting rather quickly. It helps to know where to begin.

7.3 How Do I Create a Podcast?

There are several different options with which to begin creating a podcast. Sites such as http://www.audacity.sourceforge.net/ have free, open source software that anyone can use to record, download, and alter audio files, including MP3 and WAV. With Audacity, you can not only create new audio files, you can import pre-existing files and edit, splice, and add effects to make your podcast more interesting or individualized. Audacity is a type of freeware: http://en.wikipedia.org/wiki/Freeware

Once Audacity has been downloaded, there are few simple steps to follow to create a podcast. Audacity has its own wiki site, at: http://wiki.audacityteam.org/index.php?title=Tutorials

The wiki has detailed tutorials on just about anything you can do with Audacity.

Jason Van Orden gives a detailed explanation of what a podcast is and exactly how to create one, and host one, and even find listeners at http://www.how-to-podcast-tutorial.com/21-podcast-hosting.htm

Mr. Byrne gives his take on the best podcasting services for educational purposes at: http://www.freetech4teachers.com/2009/07/5-resources-for-creating-and-hosting.html

Where Do I Do with My Completed Podcasts?

Once you have created the podcast, you can use a free blogger site like Google blogger www.blogger.com to host your podcast. Blogger is free, but there are other sites where you can pay to have your podcasted hosted and stored.

Another free place to begin the podcasting process is http://mypodcast.com/signup.html. Simply name your podcast, fill in a few simple details such as name and e-mail, and one can begin podcasting rather quickly.

Available for free at Connexions <http://cnx.org/content/col10600/1.10>
Listening to his teacher’s podcast?
Classrooms in All Grade Levels and Subject Areas have created a wide array of podcasts. Many of which can be found at the site I had mentioned earlier http://epn.org
Examples of Podcasts:

7.3.1 Podcast Produced by College Students:

7.3.2 This is a podcast about young adult literature, produced for an English methods class that studies adolescent literature. Although this is produced by college students, middle or high school students could just as easily produce this podcast, because several of the books are appropriate for adolescent and teenage readers.

This particular podcast could also be used in middle and high school classes that are studying the same texts. The podcasts could serve as a hook to get students interested in the text, or as an example of how college students summarizations are different than a middle school student’s.


Other episodes can be reached at: http://epnweb.org/index.php?request_id=1131&openpod=4#anchor4

7.3.3 Room 312 – A View into the Vortex: Podcast Produced by an English teacher


http://epn.org/
http://epnweb.org/index.php?request_id=1131&openpod=4#anchor4

Available for free at Connexions <http://cnx.org/content/col10600/1.10>
Here, another teacher creates his own podcast to instruct students in all sorts of things, including, in one case, coordinating and subordinate conjunctions. Although the material is rather dull, the teacher makes attempts to use humor and movie clips to appeal to students. For instance, the voice that introduces the podcast sounds like a high-brow British professor, although the teacher himself has no such accent. He uses an audio clip of Star Wars to illustrate independent clause usage. The podcast is certainly informative.

The teacher also elaborates on students’ in class assignments in some podcasts.

Figure 7.2

7.3.4 8th Grade Students Talk about Edgar Allen Poe: Mabry Middle School

A great example of the kinds of podcasts that Language Arts students are capable of creating. Students capture the macabre element of Poe’s works very well.

http://svemedia.podomatic.com/player/web/2008-03-11T04_40_34-07_00

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[^33]: http://epnweb.org/index.php?request_id=2650&openpod=4#anchor[^34]

[^34]: http://svemedia.podomatic.com/player/web/2008-03-11T04_40_34-07_00

Available for free at Connexions <http://cnx.org/content/col10600/1.10>
7.3.5 Mrs. Sanders’ class podcast: Westfield Middle School, Texas.

7.3.6 I particularly enjoy Mrs. Sanders’ take on Justin Timberlake’s “Sexy Back”, which she entitles “I’m bringing vocab Back” In this Case Mrs. Sanders produces the podcasts for her students to use as educational tools and for fun.

Definitely check this out:
http://heatherchad.podomatic.com/entry/2007-10-03T18_45_14-07_00

As you can see, Mrs. Sanders uses the site podomatic.com to host her podcast.

7.3.7 Pro’s:
1. The potential uses of podcasts are limited only by you and your students’ imaginations.
2. Podcasts can be simply downloaded and used as educational supplements, or they can serve as a whole class or small group project.
3. A student could make a podcast about their favorite book, or they could act out a scene from their favorite play. Teachers can create podcasts on their own for use in the classroom, or for students to use while at home.
4. Podcasting is relatively easy, and, except for the few pieces of equipment necessary, nearly free.
5. Podcasting is an easy way to incorporate cross-curriculum instruction. History classes can tell a story from the perspective of Benjamin Franklin, or English classes could explore the 19th century society of Huck Finn.

7.3.8 Con’s
1. A lack of time, on the part of both teachers and students is probably the biggest usage constraint. Learning the basics how to’s of podcasting may consume a whole class period. In a school environment increasingly obsessed with standards, if may be difficult to justify the class time that podcasting requires.
2. Teacher created podcasts also consume time, and time is certainly precious in the teaching profession.
3. Before publishing student podcasts, a teacher would need to be sure that nothing inappropriate was being published.
4. Not all schools or classes have access to even the most basic computing equipment necessary to make a podcasts.

Available for free at Connexions <http://cnx.org/content/col10600/1.10>
7.4 Considerations for Teachers:

As a teacher of any subject and any grade level, you are capable of producing podcasts or having your students produce one.

A podcast can serve many functions: a class project, a group or individual project, an educational supplement, a place to share your interests in your subject area, a way to allow your student’s work to reach a larger audience, and a way to allow student’s creativity to thrive.

Certainly, an activity such as this can help students who do not learn well through lectures or other traditional class activities.

Some students prefer a more hands-on approach to learning, and podcasting fulfills that requirement. It also allows students to learn collaborative skills that will serve them well in other classes and in college.

You will need detailed explanations to students before you begin a podcasting project.

Available for free at Connexions <http://cnx.org/content/col10600/1.10>
Chapter 8

Photo Story 3

Photo Story in the elementary school classroom
Module by: Megan Clontz and Crystal Fleeger
Getting started with Photo Story:
Let’s begin with the basics. Before creating a project you must first download this free software from Microsoft.com. Follow these instructions to get started:

1. Type or copy and paste http://www.microsoft.com/windowsxp/using/digitalphotography/photostory/default.mspx
2. From this link click on “Download Photo Story 3” located in the center of screen.
3. Click the “Continue” button located next to “Validation Required”
4. Now click the “Download” button located next to “Genuine Microsoft Software”
5. From here follow the instructions given on the screen.

Now that you have Photo Story 3 downloaded on your computer, it’s time to start digital storytelling.

Adding Pictures:

1. Once you have Photo Story 3 opened on your computer, click “Begin a New Story”
2. After clicking next at the bottom of the screen, a new page will load and you may begin adding pictures.
3. In order to add pictures to your Photo Story, click “Import Pictures…”
4. This will open a File Browser. Choose the location of the picture you would like to add using the list on the left.
5. You may then choose the picture you would like to use from the documents on the right. After clicking on the picture so that it is highlighted, click the “OK” button. This will add your chosen picture to your Photo Story.
6. Repeat step 5 until all the pictures you would like to use have been added.

Adding Titles:

1. In the box to the right of your picture you may type in any text you would like to appear on your picture.
2. You can then left align, center align, or right align your text using the buttons above the text box.
3. You can then place the text on the top, center, or bottom of your picture by using the buttons on the upper right of the text box.
4. By clicking the button to the upper left of the text box (with two A’s) you can change font, font style, font size and color, and add effects.

Custom Motion

1This content is available online at <http://cnx.org/content/m18675/1.1/>.
2http://www.microsoft.com/windowsxp/using/digitalphotography/photostory/default.mspx

Available for free at Connexions <http://cnx.org/content/col10600/1.10>
1. Click on the “Customize Motion” button below the picture.
2. Click on the empty box that says “Specify start and end position of motion.”
3. You may then adjust and move the box on the picture under ‘start position’ to change where your picture will begin showing.
4. Once you have changed the start position you can do the same with the end position using the picture on the right under “end position.”
5. You can either let Photo Story decide the duration of the movement or you can set this manually by clicking in the empty circle at the bottom of the screen labeled “Number of seconds to display the picture.” Once this has been clicked you can use the arrows next to the number to quicken or slow the movement across the picture.
6. If you would prefer to have still picture rather than including motion, you may insert transitions between slides instead. To do this you will click on the “Custom Motion” picture and then the tab labeled “transitions.” From there you simply choose the transition you would like to use.
7. When you have made your selections you can then click the preview button on the bottom of the screen to view the slide show.
8. If everything is like you want it, click “save” and then “close.”

Narrating Your Picture:

1. When you are ready to record narration, click the large round button with the small red dot in the center. The program will begin recording immediately so be prepared with what you are going to say. To help you with this there is a text box below this button where you can write notes to help you remember what to say.
2. When you are finished recording, click the smaller round button with a black square.
3. You can think listen to what you have recorded by clicking “Preview . . .”
4. If you would like to re-record, click the button beside the stop button with the

1. Now that you've become an expert on the operational aspects of the tool/resource, you will now need to explore classroom-based examples of how teachers have implemented the tool or resource. Ideally, these examples will be from your grade level and content area, although this is not necessary. After you have explored many examples, select four of the best examples and create a brief description of each implementation with a link to the write-up of the lesson project you found online.
2. After exploring the tool or resource in depth and examining classroom examples, please develop an annotated list of the affordances and constraints of the tool or resource. In other words, what value might it add to the classroom and what might teachers need to be wary of in incorporating the tool or resource into their teaching.
3. Finally create a short list of tips that teachers might consider in implementing the tool or resource into their teaching. Try to keep this as concise as possible while still being useful for the teacher.

Available for free at Connexions <http://cnx.org/content/col10600/1.10>
Chapter 9

Writing with Caribbean Teachers: the Reading-Writing Link

9.1 Introduction to this module

This module contains the following sections: Read each one and raise questions that will help to develop it further. * A mindset for writing: Caribbean authors and you * Reading in order to write * Journaling and personal expressive writing * Getting the writing habit and resources for writing

This module hopes to answer the need of some young teachers in Trinidad and Tobago to be better writers in order to teach writing. In this regard they asked several questions. The following were among them.

A mindset for writing with Caribbean authors

How can we use our writing skills to help our students to acquire Standard English? "I left secondary school many years ago so I am a bit 'rusty' do you think it will be hard for me to pick up writing again?" "Can we use readings from Caribbean authors as a starting point for our classes?" "I hope you are the only person who will be reading what I write." The aim is to have teachers see themselves as writers, in order to gain confidence in the act of writing and to link reading to writing. Here is Samuel Selvon, a weaver with words in "My Girl and the City":

"I wooed my girl mostly on her way home from work, and I talked a great deal. Often, it was as if I had never spoken; I heard my words echo in deep caverns of thought, as if they hung about like cigarette smoke in a still room, missionless; or else they were lost forever in the sounds of the city....In the crowded bus...I shot words over my shoulder, across seats...they found passage between "fares please" and once I got to writing things and pushing my hand over two seats....there was the urgent need to communicate before we parted....All these things I say, I said, waving my hand in the air as if to catch the words floating about me and give them mission"(Nasta and Rutherford, p.96).

One can choose excerpts from the works of other Caribbean authors and become familiar with them. The excerpt above from Samuel Selvon speaks of the magic of using words, of words being given a mission: to woo Selvon's girl, to communicate his feelings with urgency. We too, can weave words into stories, journal entries and poems with the confidence and skill of a Selvon or a Walcott, so giving to our words a mission and a life of their own. We can read our selected excerpts aloud several times a week and jot down notes to ourselves or questions that we might have. While doing this one should discover the mission and the meaning of the author's words. We can roam the landscapes and seascapes they create and be inspired to want to create our own. Q: What have you discovered about the writings of your favourite Caribbean author? You'll want to investigate too the growing body of Caribbean Children's Literature and build your own lists.

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1This content is available online at <http://cnx.org/content/m14129/1.43/>.
Reading in order to write
In order to be a writer or to write with some fluency, one should be an avid reader. So many of our young teachers "confessed" that they did not read habitually because they lacked the time to do so. In this information age of well-informed students, we need equally well-informed teachers. It is frightening to think that as teachers we do not read beyond the text and supplementary materials that we use with our classes. It is also frightening to think that writing as a hobby is low on our list of "must-cultivate" priorities when we must also teach students how to write. Reading is linked to writing and many good writers are avid readers. Can we link these two "arts" for our growth and development?

Journaling and personal expressive writing
Keeping a journal and writing personal expressive pieces were a part of the course in Written Communication at the Corinth Teachers College campus (UTT). A few teachers openly stated that did not like writing and whether this was a way of "finding out their business". The answer to such a response was that their pieces do not have to reveal secrets but to express their thoughts and feelings on any topic: to show that they are human. The challenge was "to link" their reading to their writing and to discuss what they found in the writings of authors such as Merle Hodge, Selvon and Jamaica Kincaid. (Q: Can you write like them or better? Have you thought of writing narrative or essays like this?) or even children's stories? Please visit the links in the navigation panel for ideas on how to keep a journal and on the qualities of expressive writing.

Suggestions for linking reading to writing
1. Make brief but "full" selections from the texts/novels of your favourite writers–Caribbean or International. For example, from *Samuel Selvon, *Merle Hodge, *George Lamming, *John Steinbeck, *Paule Marshall, *F. Scott Fitzgerald, *Earnest Hemmingway or others. 2. Print out your selections and READ them aloud to yourself. You can also tape yourself while reading. Let the selections "simmer" and return to them periodically during the course of the week. Say why you chose these portions of text for your reading. 3. In your private moments begin "playing with" story ideas and topics which you can use for writing personal essays. These ideas may "resemble" those from your favourite author. If the resemblance is too close "work on" them i.e. in a pre-writing fashion rewrite your ideas and topics until you feel they are entirely your own. If you can devise plots for stories and writing topics quite easily, skip this step. 4. Finally begin to write. Your confidence in your talent will grow. Expressions from your favourite authors will even come to you. Perhaps you can try modifying them or creating imagery which resembles that of your favourite author. Your style will evolve over time and with practice. 5. Read back your personal essays or stories, share them and feel good about them.

Need for confidence
Many of our teachers passed through the Cambridge Advanced Level examination system where General Paper, consisting of the writing of two essays, either argumentative or expository, formed the final examination in writing. While this satisfied an entry requirement for the teaching profession, perhaps it did not encourage developing writing as a hobby or building a lasting interest in reading and writing as a way of life for teachers. Personal expressive writing may be a start towards removing negative thoughts about the writing process. One young teacher admitted: "I'd never be a writer, but the important thing is to overcome negative feelings about writing; in this way I'll better be able to teach students how to write."

What student teachers wrote about
Initially it was difficult for the teachers to get going. They did the thinking and the pre-writing of their pieces in various places– while travelling on the bus, having lunch or in some cases after they put their children to bed. They wrote the personal expressive pieces as journal entries on subjects that ranged from childhood, to being a mother or a father, on relationships, on their being homesick–missing home, on the death of loved ones and even on writers' block.

I noticed that writing in the personal expressive mode increased our teachers’ desire to write even though they have not done this kind of writing before. Several of them reported that as they wrote about their personal, private experiences, they felt better about themselves, words and ideas flowed freely from them after a few "false starts". Many were encouraged after reading The Diary of Anne Frank. However, a few wished to share what they wrote only with the tutor since they felt sensitive about their pieces. They were eager to edit their drafts and saw this exercise as valuable in sharpening their writing skills.

Available for free at Connexions <http://cnx.org/content/col10100/1.10>
**Getting the Writing Habit**

The following are some suggestions for those who need encouragement in sharpening their writing skills once again: (1) Make the time to read as a hobby. (2) Visit the West Indian/Caribbean fiction shelf of your local library. Have a favourite author. (3) Keep a journal about your thoughts on any topic. (4) Do some personal writing as journal entries and resolve to write often. (5) Join a network of local writers and share your stories if you wish to write for publication. (6) Your students will eventually follow your lead. Explore the sites below. They are web resources that teachers can use to upgrade their skills to get ideas for teaching Writing.

**Writing Centers:**
*Paradigm Online Writing Assistant, *OWL at Purdue Univ., *Colorado State Writing Center Use your search engine to search for them on the web. http://google.com

Link to Reference List for this article—click here ²

²http://www.freewebs.com/utt140/linkstoliteracycnxorg.htm

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A brave new digi-world and Caribbean Literacy: a search for solutions

Few areas in our world today remain untouched by the influence of the new technology and its impact on education. Teachers must now devise new strategies for teaching and the exchange of information in classrooms with a view to improving Literacy and the comprehension of English among speakers of English-based creoles. We advocate research and experimentation with digital tools as one of the ways of involving young teachers in possible projects that will challenge their own Literacy as well as that in the wider society.

THIS COLLECTION of articles was sourced on the Connexions server with precisely this aim in mind. The first article on the history of Literacy and the evolution of the Connexions (OER)model gives us the signal that the proliferation of digital tools and their use in education will radically alter the face of teaching and learning in the coming decades. The second article explores the topic of the changing learning styles of digital learners. We are in for an educational adventure that has implications for the way Literacy can grow and be a source of enjoyment among dialect speakers of English. These articles form a framework for an exploration of how digital tools can be used to enhance Literacy on our campus. The COLLECTION will be used for a discussion of the issues in workshops and as supplemental reading in Literacy related courses. It has evolved out of an initial exploration of the topic of technology and Literacy. One hopes that it will attract attention and feedback from others in the field of Literacy and the new technology.

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