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# Aligning technology and language arts standards

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# Aligning technology and language arts standards

## **Abstract**

The standards of language arts and technology blend fluidly to provide for an optimal learning environment. Language Arts teachers and students of all levels can gain significantly from the incorporation of multimedia software into the curriculum. Educators demonstrate responsible teaching when the initiative is taken to incorporate these otherwise separate areas together. Multimedia provides for an additional method for students to obtain, demonstrate, and share information. The use of technology into all curricular areas helps to develop life skills that are considered necessities in many jobs today.

**Aligning Technology and Language Arts Standards**

**A Graduate Review**

**Submitted to the**

**Division of Educational Technology**

**Department of Curriculum and Instruction**

**in Partial Fulfillment**

**of the Requirements for the Degree**

**Master of Arts in Education**

**UNIVERSITY OF NORTHERN IOWA**

**By**

**Catherine A. Feldmann**

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This Review by: Catherine A. Feldmann

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Has been approved as meeting the review requirements for the Degree of Masters in Arts  
in Education.

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Date Approved

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## Abstract

The standards of language arts and technology blend fluidly to provide for an optimal learning environment. Language Arts teachers and students of all levels can gain significantly from the incorporation of multimedia software into the curriculum.

Educators demonstrate responsible teaching when the initiative is taken to incorporate these otherwise separate areas together. Multimedia provides for an additional method for students to obtain, demonstrate, and share information. The use of technology into all curricular areas helps to develop life skills that are considered necessities in many jobs today.

## Introduction

Administrators and teachers need to understand the necessity to integrate technology into the curriculum. Technology is often seen as a tool to assist in the preparation of classroom or as a stand alone curriculum that needs to be covered in the scheduled “computer class.” Combining the skills associated with technology with the curriculum from Language Arts can provide another creative outlet for students to connect and have meaningful learning experiences. These encounters will provide students with necessary life skills.

Students may learn isolated skills and tools, but they still lack an understanding of how those various skills fit together to solve problems and complete tasks. Students need to be able to use computers flexibly, creatively and purposefully. All learners should be able to recognize what they need to accomplish, determine whether a computer will help them to do so, and then be able to use the computer as part of the process of accomplishing their task. Individual computer skills take on a new meaning when they are integrated within this type of information problem-solving process, and students develop true “computer literacy” because they have genuinely applied various computer skills as part of the learning process. (Eisenberg & Johnson, 1996, p.1)

Language Arts teachers and students of all levels can profit significantly from the incorporation of multimedia software into the curriculum. Visual tools are an

important way to accommodate a variety of learning styles, engage the students in active learning, and incorporate technology into the framework of a curricular area. One way to promote student learning and enhance skills necessary for the future is through the use of visual technology (Valdez, McNabb, Foertsch, Anderson, Hawkes, & Raack, 2000).

This review will provide information that will support and aid K-12 teachers, with an emphasis on middle school, in enhancing the students' educational experiences through the use of multimedia software. Newby, Stepich, Lehman, and Russell (2000) pointed out that students are actively involved and often highly motivated when developing multimedia. When developing a presentation with the use of software, a learner must research, evaluate, organize, and present information. The students use prior knowledge to make connections with the data and facts that were acquired.

The review paper will explain the methodology in locating information and the role of teachers with technology. This document will also include information about standards in the areas of language arts and technology. The paper will provide supported reasons why multimedia should be used in the classroom. Finally, the review will provide ways that different software can be used in a language arts classroom.



## Methodology

In researching topics linked to integrating technology and language arts, the author utilized many resources. Typical search engines such as Yahoo and Google were used to locate ideas in relationship to the visual literacy and multimedia software. Internet search engines found hundreds of sites that contained the key phrases “integrating technology” and “technology in language arts.” Sites were deemed credible and reliable if they were in the “.gov,” “.k12,” or “.edu” domains and contained a bibliography of resources. Information found on the U.S. Department of Education web site was considered to be very reliable. The researcher also used the University of Northern Iowa Rod Library and the web sites linked to that site. The Educational Resources Information Center (ERIC) database accessed through the Rod Library proved to be a very resourceful site. The researcher visited the University of Northern Iowa Campus. The UNISTAR catalog system at the Rod Library was used to locate text associated with visual literacy, integrating technology, and multimedia software. In addition, various journals were browsed for pertinent information.

The main criteria the researcher used to compile the information was to look for theories or application. Theories of motivation and case studies with the applied theories were also included as constructive data. The information involved learners from various age groups and levels and contained no boundaries for socioeconomic backgrounds or races. When looking through the information

gathered, key ideas and information were written on note cards with reference to the source. Upon looking through the information from electronic and print sources, many of the same authors were referenced in multiple sources. The researcher felt that this added to the reliability of the information.

## Analysis and Discussion

### *Role of Teachers*

Teachers have a crucial role in aligning technology standards with other curricular areas. However, teachers are often intimidated by technology because of the prospect of having yet another area for which to hold students accountable. Another part of the conflict to integrating technology in the curriculum is that teachers do not feel they have the adequate skills and knowledge. Teacher in-service and additional times to practice what has been learned are the first areas to be overlooked. "Time and again, the research comes back to the teacher as the most influential component of a successful technology program" (Quinn & Valentine, 2002, p. 4). Integrating technology training is a must for today's classroom teachers. The segregation of computer skills curriculum and other curricular areas needs to end to allow for more meaningful technology learning. Instruction and time to learn through self-discovery is crucial for teachers. This time is necessary to help raise teacher comfort in the area of technology.

When technology is used as a tool for accomplishing complex tasks, the issue of mismatched technology content and curriculum disappears

altogether. Technological tools can be used to organize and present any kind of information. Moreover, it is not necessary for the teacher to know everything about the tools that students use; students and teachers can acquire whatever technology skills they need for specific projects. In fact, one of the best things that teachers can do with respect to technology is to model what to do when one doesn't know what to do. (Means & Olson, 1994, p.1)

When computers were first introduced into the classroom, teachers were typically given the task of using them with little or no training. (Sandholtz, Ringstaff, & Dwyer, 1997) This practice has not changed for educators. The appeal of the technology and the cost dictated that they be used, but often there was little connection made with curriculum.

The International Society for Technology in Education sees a need for the role of teachers to become more prevalent. The National Educational Technology Standards for Teachers were developed in correlation with student achievement (ISTE, 2000). These standards relate to student use of technology and the responsibilities of a teacher as a professional. The ISTE (2000) professional standards for teachers state the following:

Teachers will: (a) develop introductory information and technology literacy knowledge and skills as described in the ISTE National Educational Technology Standards for Students; (b) plan and design

effective learning environments and experiences supported by technology; (c) implement plans, methods and strategies for using technology to maximize student learning; (c) understand how to assess student learning and apply technology to facilitate a variety of assessment and evaluation strategies; and (d) develop knowledge, skills, and attitudes preparing them to apply technology for enhancing their own professional growth and productivity. (p. 1)

These professional standards reinforce the idea that technology needs to be a part of the overall educational experience and not an isolated course or curriculum.

One of the responsibilities of the educator is to take the steps to provide meaningful integrated experiences. Teachers are the ones who guide the instruction in a classroom.

Another role of teachers is to shape the instruction to suit students' needs. If teachers are comfortable with the integration of technology and they are able to blend the curriculum, they will become empowered to advance their own professional skills through these tools as well (U.S. Department of Education, 2000). Professional development is the most critical ingredient to the use of technology in the context of literacy education. Teachers need to develop skills beyond the basic applications that make up software programs. These skills need to give them self-assuredness to integrate and connect their curriculum with

technology. Confidence from the teachers will foster positive authentic learning experiences for the students.

What matters most are not the machines and the wiring themselves, but what teachers and students do with them... a constructivist approach toward learning, in which students work in rich environments of information and experience, often in groups, and build their own understandings about them - taps into the computer's greatest strengths.

(Quinn & Valentine, 2002, p. 4)

Eisenberg (2002) believed that educators are slowly becoming aware that students do not just need to learn how to operate computers and various software but to be able to use a wide range of information technologies. There also needs to be a shift in the focus of teaching computers in a separate class to the mindset of students learning technology in a purposeful way included in all curricular areas. Schools across the nation have been increasing the amount of computers and other technologies available to teachers and students. Computer access is readily available in the majority of the homes across the United States. (Eisenberg, 2002) For individuals who do not have direct access in a home environment, public libraries and facilities offer these services.

Now, we've entered an era in which technology is no longer an intimidating novelty. Its use in business and industry is both accepted and expected. And pressure abounds—from the federal government, from

local school boards, and certainly from the popular press – for educators to get on board and see to it that students become technologically skilled.

(Schrum, 2000, p.1)

Schrum (2000) pointed out that computers could no longer be held in reserve for specific computer classes. Computers and other technology must be made available to all students to be used as a tool integrated into learning. “Learning to use technology is a clear goal in K-12 education today, and schools worldwide are scrambling to add hardware, software, and connectivity and to infuse computer technology into the instructional program” (Eisenberg, 2000, p.1).

Teachers from different backgrounds handle technology integration in a variety of ways. The book *Teaching with technology: Creating student-centered classrooms* (Sandholtz, Ringstaff, & Dwyer, 1997) focused on collaboration between Apple Computer Inc. and five classrooms across the country. The main idea of the program was to integrate technology slowly into the schools working only with a small percentage of students and teachers. Over a period of time technology was coordinated throughout the building and growth of the students and teachers were monitored. The researchers involved with this project found that schools were more successful with fully integrating technology when the staff was open-minded and acted as a support team for fellow teachers.

## *Standards*

Standards are a way of arranging knowledge and skills of a subject area (NCEE, 1997). They are also a point of reference for assessment. A way to ensure the standards are manageable is by making the most of opportunities for students' work to cross-reference and demonstrate achievement from more than one subject area. This review looks at a small number of standards from the National Center on Education and the Economy (NCEE) and the National Educational Technology Standards (NETS) developed by the International Society for Technology in Education (ISTE, 2000). The main goal is to show how technology standards can be incorporated into language arts.

Language arts is seen as culmination of many parts that encompass the whole English language. Competent communication skills are dependent upon all components. Standards for reading, writing, speaking, listening, and viewing, and conventions, grammar, and usage of the English language are integral to the success rate of today's schools.

Reading is a process that includes demonstrating comprehension and showing evidence of a reasonable and responsible understanding of the text.

NCEE (1997) standard E1a stated the following:

The student reads at least twenty-five books or book equivalents each year and demonstrates this knowledge through the production of at least one of the following pieces of evidence: (a) maintains an annotated list of works

read; (b) generates a reading log or journal; and (c) participates in formal or informal book talks. (p. 22)

The learner in a variety of formats can achieve the reading standard listed above. Reading is one area, which can connect with other subject areas to meet various standards.

Writing is a process that uses language skills to communicate effectively. Writing is a series of plans in which higher order thinking skills are necessary to organize information. NCEE (1997) standard E2b stated the following:

The student produces a response to literature that: (a) engages the audience; (b) advances a judgment that is interpretive, analytic, evaluative, or reflective; (c) supports a judgment through references to the text, references to other works, authors, or non-print media or references to personal knowledge; (d) demonstrates an understanding of the literary work; (e) anticipates and answers a reader's questions; and (d) provides a sense of closure about the writing. (p. 24)

Cunningham and Allington (1994) believed that one of the most powerful connections students can make is to communicate about reading through the process of writing.

Speaking, listening, and viewing are the basic manner which people use to express, explore, and learn about ideas. The environment of these communication tasks can include one-to-conferences, small groups, and whole class interactions.



NCEE (1997) standard E3c stated the following:

The student prepares and delivers an individual presentation in which the student: (a) shapes information to achieve a particular purpose and to appeal to the interests and background knowledge of audience members; (b) shapes content and organization according to criteria for importance and impact rather than according to availability of information in resource materials; (c) uses notes or other memory aids to structure presentation; (d) develops several main points relating to a single thesis; (e) engages the audience with appropriate verbal cues and eye contact; and (f) projects a sense of individuality and personality in selecting and organizing content, and in delivery. (p. 25)

The NCEE standards demonstrate how the uses of oral communication skills allows students who struggle with written skills to demonstrate knowledge of a topic or express ideas.

Using the correct rules, grammar, and usage of the English language is seen as having the ability to represent oneself appropriately in writing and speaking. NCEE (1997) standard E4a stated the following:

The student demonstrates an understanding of the rules of the English language in written and oral work, and selects the structures and features of language appropriate to the purpose, audience, and context of the work. The student demonstrates control of: (a) grammar; (b) paragraph structure;

(c) punctuation; (d) sentence construction; (e) spelling, and (f) usage. (p. 26)

These standards blend in with other standards from various subject areas. They clearly lend themselves to a variety of activities, mediums, and tools to demonstrate understanding.

Technology is an ever-changing tool that is available in most buildings to some degree. The challenge facing America's schools is allocating the power of technology to students so that they may function effectively in the future (ISTE, 2000). The technology foundation standards for students dictated that skills are to be initiated, restated, and mastered. ISTE (2000) lists the following:

Prior to the completion of grade 8 students will: (a) exhibit legal and ethical behaviors when using information and technology, and discuss consequences of misuse; (b) apply productivity/ multimedia tools and peripherals to support personal productivity, group collaboration, and learning throughout the curriculum; (c) design, develop, publish and present products using technology resources that demonstrate and communicate curriculum concepts to audiences inside and outside the classroom; (d) collaborate with peers, experts and others using telecommunications and collaborative tools to investigate curriculum-related problems, issues, and information, and to develop solutions or

for the effective use of technology in elementary and secondary education to help the next generation of schools children to be better educated and better prepared for the evolving demands of the new American economy. (U.S. Department of Education e-Learning, 1999, p. 1)

Education technology can improve student achievement. The CEO Forum (2001) released a study from West Virginia that showed an overall increase in statewide assessment scores in basic skills areas. Eleven percent of the gain directly relates to the Basic Skills/ Computer Education technology. These standards were implemented 10 years ago in West Virginia.

Basic skills are not the only driving force behind the use of technology. Simkins, Cole, Tavalin, and Means (2002) suggested that there are three skill sets students need to be competitive for today's jobs: (a) hard skills, which include math, reading, and problem-solving skills with mastery at a much higher level than previously expected of high school graduates; (b) soft skills, which are the skills and ability to work in a group and communicate effectively, and; (c) the ability to use a personal computer to carry out responsibilities of using a word processor, data management, and creating multimedia presentations. Simkins et al. (2002) also noted that the Secretary of Labor's Commission on Achieving Necessary Skills noted that to find significant jobs, high school graduates need to master a combination of foundation skills and competencies. These foundation

skills included thinking skills, such as reasoning, making decisions, thinking creatively, and solving problems, in addition to personal qualities such as responsibility and self-management. These are skills students learn when engaged in multimedia learning.

### *Multimedia in the Language Arts*

Technology has provided an alternative method to solve problems. The problems themselves have not changed much over decades. The thought processes and not the specific skills are key to a sound education. Students who become proficient in using very specific technologies during their school days may not be able to easily transfer that knowledge to new technologies found in their workplace.

The last quarter-century has seen many jobs and workplaces transformed by technology, and the rate of change shows no sign of slowing.

Succeeding in this environment will mean that workers need a firm foundation in basic skills, the sophistication and focus to work productively in new workplace cultures, and the ability to learn new skills and master new technologies throughout their careers. (Giddens & Staaz, 1999, p. 18)

With the constantly evolving nature of technology, believing that specific computer skills taught to students would be sufficient to prepare them to immediately step into the workplace would be naive.

Simkins et al. (2002) stated that curriculum; multimedia, real-world connection, assessment, collaboration, extended time, and student decision-making are the keys to a successful project with students. Multimedia is an unusual form of communication because this approach allows users to design their own paths through the media. The designer must think through a presentation so that all users can find what they are looking for. The designer has to be clear about the ideas going into the project and about the media elements needed to convey the needed message.

Hyerle (2000) pointed out that as students become learners in a society of workers, they would be required to weave information together from different sources as they work at a computer station. Using a variety of software and creating multi-step projects is one way to get students thinking in preparation of the future. Any task that gives the learner the flexibility to apply previous knowledge that has been acquired provides an avenue for success in the future.

Simple word-processing is one of the first forms of technology that students are exposed to. Students learn basic keyboarding skills and formatting for documents. Learners should also perform prewriting activities, note taking, or brainstorming tasks (Newby, Stepich, Lehman & Russell, 2000). These skills can be expanded into proofreading and to teach the students how to cut, copy, and paste into other software programs or e-mail.

Graphic organizers are a wonderful way for students to organize information and increase reading comprehension. Hyerle (2000) stated that using graphic organizer software is a good way to analyze and synthesize information before turning to a word processor to write a report. A graphic organizer is a good way to see facts in an orderly presentation before exporting the information to presentation software or a word processor.

Presentation software such as Hyper Studio or PowerPoint provides excellent outlets for students to display knowledge. This style of software replaces the functions of slide projectors or overheads. Newby et al. (2000) offered the ideas of having students make in-class presentations such as book talks or reports, contributing to a class lesson on a subject, or preparing information for use on the web.

### Conclusions and Recommendations

Language Arts teachers and students of all levels can profit significantly from the incorporation of multimedia software into the curriculum. This paper explained the methodology to locating information for the review and the role of teachers with technology. Information about the standards in the areas of language arts and technology was introduced. The document provided reasons why multimedia supports classroom activities and suggested ways that different software can be used in language arts classrooms.

There are many standards in our educational system that teachers need to be sure to include as part of the curriculum. Efficiency and incorporation of standards is necessary to make optimal use of class time. Language arts and technology standards blend fluidly to allow for higher level activities that engage the students in learning. Learning to use technology is part of the evolution of a teacher. Helping students become lifelong learners requires teachers to model using technology. Confidence and knowledge about new technologies and software do not develop overnight for the teachers or the learners. Instruction and practice time is a necessity at all levels so that the technologies can be utilized to their fullest potential. The integration of technology into the language arts curriculum would allow for authentic learning experience for the students as well as the teacher to take place. In a technology rich classroom, the focus is on learning with appropriate technology. Teachers must use the computers that have been placed in their rooms to demonstrate that technological tools will help to facilitate learning and achieve goals. Working with new technologies that are supported by the ISTE professional standards will foster growth in educators as facilitators.

Students are able to communicate in ways that were not imaginable ten years ago. Technology touches every part of students' lives. Students need a changing curriculum to be literate in today's world. As students become more and more comfortable with using technology in their homes, the need is there for

facilitating to take place in the schools. Computers in general are changing the ways that students are motivated to learn. Schools need to acknowledge this shift in the paradigm and start to support the integration of technology into the curriculum. Treating technology skills in isolation is not fostering life skills necessary in today's job market. The definition of being literate in today's world needs to include technology. The information and research reviewed points out a variety of needs for students in the future entering the work force. This need dictates that students have hard skills, which were defined as math, reading, and problem-solving skills, soft skills of communication, the ability to work with others, and personal computing skills to carry out responsibilities. These skills are noted to be benefits of working with multimedia projects.

Different software is available to meet different needs in the classroom. Software has its own specialty and yet is so flexible. These tools allow for higher order thinking skills, nurture creativity, and scaffold off previous knowledge creating meaningful learning experiences for the students. For all of these reasons, technology should become an integral part of language arts instruction.



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